FINAL SITE CHARACTERIZATION REPORT

Assessment of Contaminated Sediments in the Kinnickinnic River Mooring Basin in the Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin

Task Order No. 0021/Contract No. EP-R5-11-09

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Acronyms and Abbreviations

AFDW	ash-free dry weight
AVS	acid-volatile sulfide
bss	below sediment surface
°C	degrees Celsius
CBSQG	consensus-based sediment quality guidelines
CH2M	CH2M HILL
DQO	data quality objectives
DUR	data usability report
EPA	U.S. Environmental Protection Agency
f_{oc}	fraction of organic carbon
FSP	field sampling plan
IDW	investigation-derived waste
IGLD85	International Great Lakes Datum of 1985
KKMB	Kinnickinnic River Mooring Basin
µmol/g	micromoles per gram
µmol/goc	micromoles per gram of organic carbon
mg	milligrams
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
NOAA	National Oceanic and Atmospheric Administration
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
PEC	probable effect concentrations
PECq	PEC quotient
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
r_s	Spearman’s rank correlation coefficients
SEM	simultaneously extracted metals
Solvay Site	Milwaukee Solvay Coke & Gas Superfund Alternative Site
TCLP	toxicity characteristic leaching procedure
TEC	threshold effect concentrations
TOC	total organic carbon
USACE	U.S. Army Corps of Engineers
WDNR	Wisconsin Department of Natural Resources
WSLOH	Wisconsin State Laboratory of Hygiene

SECTION 1

Introduction

This site characterization report documents the field activities and findings of the investigation conducted within the Kinnickinnic River Mooring Basin (KKMB) in the Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin. The investigation was performed to gather information regarding the nature and extent of contaminated sediments where limited sediment data were available. The investigation was conducted for the U.S. Environmental Protection Agency's (EPA's) Great Lakes National Program Office under Task Order No. 0021, Contract No. EP-R5-11-09. Field investigation activities took place from May 11 to 15, 2015.

The site characterization report is organized as follows:

- Section 1 presents the site setting, site history, and previous investigations.
- Section 2 presents objectives and description of the field investigation activities.
- Section 3 presents the investigation results.
- Section 4 provides conclusions, including a summary of the key findings and recommendations.
- Section 5 provides the references cited in this document.

1.1 Site History and Description

The KKMB project area is connected to the Kinnickinnic River downstream of South Kinnickinnic Avenue, south of downtown Milwaukee in Milwaukee County, Wisconsin (Figure 1). The Kinnickinnic River discharges into Lake Michigan at the Milwaukee federal navigation harbor. A majority of the Mooring Basin is maintained by the Port of Milwaukee and was last dredged in December 2001; however, Nidera maintains a small portion of the Mooring Basin near its loading dock and frequently performs maintenance dredging (Figure 1). The 2001 dredging of the Mooring Basin was performed by the Port of Milwaukee to 27 feet below the International Great Lakes Datum of 1955. Bathymetric survey data collected in 2013 by the U.S. Army Corps of Engineers (USACE) indicate that the Mooring Basin sediment surface elevation varies from approximately 20 feet to greater than 30 feet below the International Great Lakes Datum of 1985 (IGLD85) low water datum of 577.5 feet. Figures 2 through 4 show bathymetric contours in feet below the IGLD85 low water datum.

The property upstream and adjacent to the study area is the Milwaukee Solvay Coke & Gas Superfund Alternative Site, herein referred to as the Solvay Site. The Solvay Site was historically used for a variety of industrial purposes, including coke and manufactured gas production, coal storage, tannery and blast furnace operations, a service yard for Milwaukee's electric trolley system, and a railcar ferry terminal. The Solvay Site has been vacant since 1983.

1.2 Previous Investigations

There is minimal sediment data from within the KKMB; however, there have been extensive in-river sediment investigations associated with the nearby Solvay Site since 2001. Characterization efforts for the Solvay Site have identified sediments impacted with metals, including mercury and polycyclic aromatic hydrocarbons (PAHs). Due to the Mooring Basin's location relative to the Solvay Site, sediment samples collected during this investigation were analyzed for the chemical constituents associated with the Solvay Site to gain a better understanding of sediment characteristics within the mooring basin area.

SECTION 2

Field Investigation Activities

2.1 Objectives

The overall objective of the site characterization effort was to gather information regarding the nature and extent of contaminated sediments, and to evaluate sediment thickness in the KKMB. The investigation plan included the following tasks:

- Collect water depth, sediment thickness, and elevation measurements from 13 locations to refine the understanding of the physical parameters of the turning basin.
- Conduct analytical sampling of suspected site contaminants (total metals, total cyanide, PAHs, including alkylated PAHs, and acid-volatile sulfide [AVS]/simultaneously extracted metals [SEM]) at 13 locations to establish an understanding of the nature, extent, and toxicity of potential contamination.
- Conduct analytical sampling of polychlorinated biphenyl (PCB) Aroclors from a subset of three locations (SD-004, SD-008, and SD-013) to determine if PCBs are present in the project area.
- Conduct analytical sampling of total organic carbon (TOC) from each interval at each of the 13 locations to assess the cohesion and bioavailability of potential contaminants to receptors.
- Assist the Wisconsin Department of Natural Resources (WDNR) by collecting surface (0 to 0.5 foot) and subsurface (0.5 to 5.0 feet) sediments and river water for bulk sediment toxicity testing at a subset of two locations (SD-010 and SD-012) and an additional sample in the river at SD-014 as reference to the Mooring Basin.
- Collect split samples from the bulk sediment toxicity testing samples to analyze for the suspected site contaminants (total metals, total cyanide, PAHs [including alkylated PAHs], and AVS/SEM).
- Conduct waste characterization (toxicity characteristic leaching procedure [TCLP] volatile organic compounds, TCLP semivolatile organic compounds, TCLP pesticides, TCLP herbicides, TCLP metals, total PCBs, pH, and flash point) on the investigation-derived waste (IDW).
- Evaluate results to assist the decision-making process on whether or not additional sediment sampling is needed to determine the nature and extent of contamination in the KKMB and to help determine potential remedial strategies.

2.2 Field Investigation Background and Summary

Prior to mobilization for the field investigation, CH2M HILL (CH2M) visited the processing area at the University of Wisconsin-Milwaukee School of Freshwater Sciences facility. This facility was used for processing sediment cores and staging the IDW drums until offsite disposal.

Mobilization for the sediment probing and sampling activities was performed on May 8, 2015. Sediment sampling activities were conducted between May 11 and 15, 2015. Field investigation activities were performed in accordance with the field sampling plan (FSP), project health and safety plan, and the data quality objectives (DQOs) (CH2M 2015a, 2015b, 2015c). Deviations from the FSPs and DQOs are described in Section 2.4 and in the data usability report (DUR, Appendix A).

Temperatures ranged from 45 to 65 degrees Fahrenheit, and wind speeds varied from 0 to 25 miles per hour. Rain occurred during 2 days of the sampling activities; however, no delays due to weather occurred.

A utility-clearance check was performed using Wisconsin's Diggers Hotline utility-locating service to mark utilities crossing the investigation area, and the utility clearance ticket was valid throughout the field event. Two utilities were noted in the Kinnickinnic River immediately downstream of the site, and two utilities were noted in the Kinnickinnic River immediately upstream of the site crossing the river on each side of the Canadian Pacific Railroad Swing Bridge. Utilities were avoided during sampling and are shown in Figures 2, 3, 4a, and 4b.

2.3 Sediment Sampling

Core sample locations in the Mooring Basin were placed in areas identified as potentially depositional based on the review of the 2015 National Oceanic and Atmospheric Administration (NOAA) nautical charts (NOAA 2015) and bathymetry maps provided by USACE. Based upon the review of the available bathymetric data, it was anticipated that sediment thickness would range from 4 to 15 feet near the sheetpile wall shoreline and at the southern tip of the mooring basin, with minimal sediment thickness within the center of the basin. The thickest sediment deposits were presumed to represent depositional areas within the KMMB and thus areas of potential contaminant accumulation.

Prior to sampling activities, sediment probing was conducted at each proposed sample location in order to gauge available sediment thickness to aid in selecting an appropriate length of vibracore liner for sediment coring. If probing encountered minimal sediment thickness at a proposed location, then an alternate location was selected by CH2M and EPA field staff based on sediment thickness observations from adjacent sample locations.

Vibracore techniques were used at each sample location, except location SD-001, where thin sediments were encountered; therefore, a ponar grab sampler was used to collect available sediment. Each sediment core was collected to refusal and sampled from the 0- to 0.5-foot interval and then continuously in 1-foot increments to the bottom of the core. If native clay material was recovered, it was segregated into its own sampling interval and collected to a maximum interval thickness of 1 foot.

Collection of additional surface and subsurface sediment for toxicity testing was completed using a ponar grab sampler for surface sediments and vibracore equipment for subsurface sediments. Locations for toxicity testing were predetermined by WDNR and are shown in Figure 2. Five gallons of both surface (0- to 0.5-foot interval) and subsurface sediment (0.5- to 5.0-foot interval) was collected from each location.

Vibracoring equipment consisted of the R/V Mudpuppy II (contracted directly to EPA) outfitted with an underwater vibracore system fitted with 5-foot lengths of 3-inch-diameter polycarbonate Lexan core-tubes. A polycarbonate core catcher capable of allowing sediments to enter the core tube while retaining unconsolidated sediments was used. Cores collected with vibracore equipment were considered acceptable if at least 70 percent recovery was achieved.

Coordinates were collected using an onboard differential global positioning system capable of submeter accuracy. The sampled depth of each core sample is presented in Table 1. Sediment core locations are presented in Figure 2.

2.3.1 Sediment Core Processing and Characterization

Core samples were processed at the onshore staging area at the University of Wisconsin-Milwaukee School of Freshwater Sciences. The sediment cores from each location were split lengthwise using electric power shears and were logged and segmented into the appropriate sampling intervals. Cores were photographed and characterized with respect to general stratigraphy, sediment type, apparent grain size, color, odor, plasticity, consistency, density, moisture, and any notable characteristics. Appendix B contains the sediment core logs. Photographs of sediment cores are included in Appendix C. The laboratory analyses were recorded in the

Scribe database. Table 1 summarizes the sediment sample locations, core penetration and refusal depths, water depths, latitude, longitude, and the observations noted during logging activities.

Following sediment core characterization, the sediment cores were divided into intervals for chemical analysis. The sediment from each sample interval was transferred to disposable aluminum pans and homogenized until uniform texture and color were achieved. The homogenate was then transferred to analyte-specific bottleware, labeled, and bagged for laboratory pickup. Following collection, samples were held on ice until they were picked up by a courier for delivery to the Eurofins Lancaster Laboratory in Lancaster, Pennsylvania (Eurofins). The samples were logged on chain-of-custody forms and stored in the Scribe database. A total of 101 samples was submitted to the laboratory for chemical analysis, including the quality assurance (QA)/quality control (QC) samples, as established by the quality assurance project plan (QAPP) (10 percent for duplicate samples and 5 percent for matrix spike [MS]/matrix spike duplicate [MSD] samples). An additional five split samples from the bulk toxicity cores (requested by WDNR) were also submitted to the laboratory for chemical analysis. The samples were analyzed for total metals, PAHs (including alkylated PAHs), PCB Aroclors, AVS/SEM, total cyanide, and TOC. Sediment characterization and field documentation notes were recorded in the field logbook.

2.3.2 Field Equipment Decontamination

Equipment used for the project, including vehicles, boats, hoses, and pumps, was decontaminated for residual sediments, as well as invasive and exotic vegetation prior to and after use in accordance with the FSP (CH2M 2015b). Nondisposable sampling equipment aboard the sampling vessels (such as vibracore equipment and ponar sampler) was decontaminated by performing a triple-rinse in the river and removing excess sediment with a stiff brush.

Nondisposable equipment used during core and sample processing (for example, power shears) was decontaminated between samples using the following protocol:

- Remove excess sediment with a stiff brush.
- Wash with Liquinox.
- Rinse with distilled water.

2.3.3 Quality Assurance/Quality Control Samples

QA/QC samples were collected at the frequency indicated in the FSP and DQOs (CH2M 2015a, b). QA/QC samples collected included the following: field duplicate samples, MS/MSD samples, and equipment blanks. Field duplicate samples were collected at a 10 percent frequency, at least, and MS/MSD samples were collected at a 5 percent frequency, at least. A summary of the field duplicate and MS/MSD sample results and discussions is presented in the DUR (Appendix A).

2.3.4 Investigation-derived Waste

Sediment remaining after processing and sampling was placed in 55-gallon drums. Waste characterization samples were collected in accordance with the FSP's IDW and disposal plan. Waste characterization samples were shipped to Eurofins for analysis. Analytical results of the waste characterization sampling were provided to EPA for review and waste profile verification. The IDW was removed from the site for disposal on July 17, 2015, by Badger Disposal Inc. Copies of the signed manifests and waste characterization sample results are included in Appendix D.

2.4 Deviation Summary

No deviations to the field procedures associated with the collection of the sediment cores were implemented during the field effort. However, minor deviations associated with the water elevation determination, quantity of samples, and method of collection were performed based on field conditions. The following is a summary of the deviations:

- The staff gauges installed as part of the Solvay Site investigation activities were planned to be used during this investigation; however, at the time of field activities, the staff gauges were unable to be located. As an alternative, the NOAA staff gauge in Milwaukee harbor was used to determine the water elevation at the time of sample collection.
- The originally estimated number of unique samples was 70 (85, including QC samples); however, due to thicker-than-anticipated sediment deposits, a total of 91 unique field samples was collected (101, including QC samples and 106, including the WDNR toxicity sample splits).
- Location SD-001 was collected using a ponar grab sample at an alternative location shifted approximately 50 feet southeast from the proposed location, due to the presence of utilities and dense sediment near the surface identified during probing.

Investigation Results

The observations and analytical results from the Mooring Basin investigation are summarized in the following subsections. Section 3.2 provides the validated analytical results (and all results are located in Appendix E).

3.1 Sediment Physical Characteristics

Based on observations at the sampling locations, the sediment thickness in the Mooring Basin ranges from less than 0.5 foot at location SD-001 to greater than 12.5 feet at location SD-013, with an average sediment thickness of 6.8 feet. Thicker deposits were observed on the upstream (southwest) shoreline of the basin (4.5 to 12.5 feet). The downstream (northeast) shoreline of the basin generally exhibited less sediments (less than 0.5 to 9.3 feet). Sediments within the center of the mooring basin ranged from 3.1 to 5 feet (SD-010 and SD-011). The recorded water depth collected at the time of sampling within the Mooring Basin ranged from 24.9 (SD-013) to 34.2 feet (SD-002). The sediment sampling locations were originally selected by targeting likely sediment depositional areas in the basin. Sediment thickness results, water depths, calculated sediment elevation, and the visual observations at each location are included in Table 1.

3.1.1 Physical Observations

Slight sheen and odor was observed during sampling at the following locations, although no visual nonaqueous phase liquid or staining was observed at these locations or during any probing or sampling:

- SD-003: odor present while retrieving vibracore
- SD-002, SD-005, SD-009, SD-012, and SD-013: odor present while processing core
- SD-009: slight sheen and odor while retrieving vibracore

3.1.2 Sediment Type and Distribution

Accumulated sediment in the Mooring Basin consists largely of silt. Several locations located along the shoreline exhibited a subsurface sediment layer dominated by sand. Native clay material was only reached in three locations: SD-003, SD-008, and SD-011. For the purposes of this investigation, native clay material is defined as grey firm clay with trace gravel as shown in Photographs 4, 14, and 22 in Appendix C.

3.1.3 Physical Parameters

The 91 unique samples submitted for chemical analysis were also analyzed for percent moisture and TOC using the Lloyd Kahn Method. TOC sample results are presented in Table 2, and percent moisture results are provided in Table 4.

- Range of TOC (surface, 0.0 to 0.5 feet below sediment surface [bss]): 2.37 to 9.73 percent
- Range of TOC (subsurface, 0.5 foot bss to refusal): 0.06 to 17.1 percent
- Range of percent moisture: 13 to 58.3 percent (average 44.6 percent)

3.2 Sediment Contaminant Analysis Summary

In accordance with the QAPP, analytical results from the 91 unique field samples were screened against applicable Wisconsin consensus-based sediment quality guidelines (CBSQG) probable effect concentrations (PECs) and threshold effect concentrations (TECs) (WDNR 2003). AVS/SEM was screened using Equilibrium Sediment Benchmarks Guidelines for metal mixtures (EPA 2005).

The analytical results, screening criteria, and screening results are presented Tables 2 and 3 for organic and inorganic parameters, respectively. Figure 3 presents results for total PCB and total PAH concentrations. Figures 4a and 4b present results for select metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc). Analytical results for AVS/SEM and physical parameters are presented in Table 4.

3.2.1 Polycyclic Aromatic Hydrocarbons

All samples collected throughout the project area were analyzed for 37 PAH compounds as specified in the QAPP by Method SW-846 8270D. Total PAHs were summed in the following two ways:

- Total PAH-18 calculated by summing the detected results and one-half of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG
- Total PAH-37 calculated by summing the detected results and one-half of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-naphthalenes. 1-Methylnaphthalene and 2-methylnaphthalene were included in the sum in place of C1-naphthalenes.

PAHs were detected in all samples, and the following general observations were noted:

Exhibit 1. Wisconsin TEC and PEC Screening Value Exceedance Frequencies for PAHs
Kinnickinnic River Mooring Basin Site Characterization

Total PAHs	Surface Summary	Subsurface Summary	Exceedance of Wisconsin TEC	Exceedance of Wisconsin PEC
Total PAH-18 (non-normalized)	1.0 – 108 (18)	0.02 – 192 (24)	75/91 (82%)	22/91 (24%)
Total PAH-18 (carbon-normalized)	0.3 – 17 (3.6)	0.01 – 14 (3.3)	50/91 (55%)	0/91 (0%)
Total PAH-37 (non-normalized)	1.9 – 182 (35)	0.053 – 297 (38)	NA	NA

Summary presents range of results and average value in parentheses
U = parameter not detected above reporting limit shown.
NA = not applicable

The full analytical results for individual PAH constituents and TOC, as well as the summations noted, are provided in Table 2. TOC-normalized total PAH-18 values have been screened against the TEC and PEC values listed in the WDNR CBSQG (2003). Per WDNR request, the non-TOC normalized summations for the total PAH-18 values have also been screened against the TEC and PEC. The results compared to the guidelines are presented in Figure 3.

PAH results are summarized and shown in Figure 3. There are no clear or consistent contaminant patterns observed in the PAH results. The samples with PAH results that exceeded the PEC were at either end of the turning basin as non-normalized values. At the northern end, near the confluence with the river channel, depositional areas on either side of the KKMB (represented by locations SD-002, SD-003, SD-012, and SD-013) also contained sample intervals exceeding the PEC. Sample location SD-006 from the southern tip of the KKMB had one PEC exceedance at the surface. The exceedances are at depth in cores SD-012 and SD-013, located on the west side of the KKMB. The area near SD-012 and SD-013 appears to be a shoal that has developed in what is likely an eddy/backwater current area that is an artifact of the flow direction of the river and the geometry of the KKMB confluence. PEC exceedances are distributed throughout cores SD-002 and SD-003 on the eastern side of the KKMB, near the confluence with the river.

When carbon normalization is performed, none of the total PAH-18 results exceed the PEC, and 50 results (both surface and subsurface) exceed the TEC of 1.61. All locations, except SD-001 and SD-004, returned at least one result where the TOC-normalized total PAH-18 value was greater than the TEC.

3.2.2 Polychlorinated Biphenyls

PCBs are not one of the historical contaminants of concern at the adjacent Solvay Site; however, since there was minimal sediment data within the KKMB, a subset of the sampled locations (SD-004, SD-007, and SD-013) were analyzed for PCBs and screened against the WDNR CBSQG (23 total samples). These three locations provided spatial coverage of the KKMB, with locations at each end of the basin and one location near the side in the central area of the basin. Total PCBs were calculated by summing the detected results for PCB Aroclors. If all Aroclors were reported as nondetected, the value of one-half the highest individual quantitation limit was used and assigned a "U" qualifier. As with the total PAHs, both TOC-normalized and non-TOC-normalized results were compared to screening values.

PCBs were not found in significantly high concentrations in the sampled locations, but some samples from locations SD-013 and SD-007, located in depositional areas on either end of the turning basin were above screening guidelines. The PCB concentration is greater at depth in location SD-007, in the southern end of the basin, and highest in the surface sample from location SD-013, collected from the depositional area on the western side of the mouth of the basin. Results are summarized in Figure 3 and Exhibit 2. .

Exhibit 2. Wisconsin TEC and PEC Screening Value Exceedance Frequencies for PCBs
Kinnickinnic River Mooring Basin Site Characterization

Total PCBs	Surface Summary	Subsurface Summary	Exceedance of Wisconsin TEC	Exceedance of Wisconsin PEC
Total PCB (non-normalized)	0.075 – 1.28 (0.67)	0.014 (U) – 3.13 (0.65)	15/23 (65%)	10/23 (43%)
Total PCB (carbon-normalized)	0.03 – 0.23 (0.13)	0.001 (U) – 0.63 (0.12)	13/23 (57%)	0/23 (0%)

Summary presents range of results and average value in parentheses
U = parameter not detected above reporting limit shown.

When not normalized for TOC, three surface samples collected exceeded the TEC, and the sample from location SD-013 also exceeded the PEC. TOC-normalized concentrations in surface samples exceeded the TEC at locations SD-007 and SD-013, and the normalized results did not exceed the PEC.

Subsurface total PCB results from locations SD-007 and SD-013 exceeded the TEC and PEC when non-TOC-normalized for TOC. The TOC-normalized PCB results largely exceeded the PEC, but the TEC level was not exceeded.

3.2.3 Metals

There were significant concentrations of several metals found in sediment; however, there are no clear or consistent contaminant patterns observed in the metals results. Results are summarized for selected metals in Figures 4a and 4b, and full results are provided in Appendix E. Ninety-one samples from locations SD-001 through SD-013 were collected throughout the project area and analyzed for total metals (including mercury) by Methods SW-6010C and SW-7471 and screened against Wisconsin TECs and PECs. Total metals results screened against the various screening criteria are presented in Table 3, and results of select metals (arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc) are presented in Figures 4a and 4b. Summary statistics and results of the screening against the TEC and PEC values are presented in Exhibit 1.

Widespread exceedances of the TEC value were observed, with 82 of the 91 sediment samples exceeding the Wisconsin TEC screening criteria for at least one metal. Seventy-one out of 91 of the sediment samples were above the Wisconsin PEC screening criteria for at least one metal (Table 3). PEC exceedances are sporadic for arsenic, copper, and nickel and moderate for mercury. Cadmium, chromium, lead, and zinc frequently exceeded the PEC, which is not unexpected in an urban, industrial watershed and is generally consistent with upstream (or reference) data collected during earlier investigations performed in the area (ARCADIS 2014). There do not appear to be any clear or consistent trends relating sediment metal concentrations to depth.

Exhibit 3. Wisconsin TEC and PEC Screening Value Exceedance Frequencies for Metals
Kinnickinnic River Mooring Basin Site Characterization

Total Metals	Surface Summary	Subsurface Summary	Exceedance of Wisconsin TEC	Exceedance of Wisconsin PEC
Arsenic	5.6 – 47.4 (17.7)	4.7 (U) – 55.6 (19.4)	69/91 (76%)	15/91 (16%)
Cadmium	0.34 – 9.89 (2.94)	0.16 – 38 (7.70)	73/91 (80%)	52/91 (57%)
Chromium	22 – 1340 (385)	6.04 – 433 (224)	75/91 (82%)	70/91 (77%)
Copper	17 – 182 (81)	6.5 – 227 (99)	71/91 (78%)	8/91 (9%)
Lead	8.0 – 770 (179)	4.8 – 586 (241)	75/91 (82%)	66/91 (73%)
Mercury	0.312 (U) – 3.53 (1.30)	0.215 (U) – 2.41 (0.81)	78/91 (86%)	29/91 (32%)
Nickel	10.5 – 35.9 (22.7)	4.8 – 66.9 (30.1)	63/91 (69%)	4/91 (4%)
Zinc	62 – 902 (408)	36 –1630 (565)	75/91 (82%)	58/91 (64%)

Summary presents range of results and average value in parentheses
U = parameter not detected above reporting limit shown.

3.2.4 Contaminant Correlations

Spearman's rank correlation coefficients (r_s) were determined using the standard Excel toolset for all parameters and are presented in Table 5. Data for all unique samples were used to establish the correlations between total PAHs and metals. Only samples analyzed for PCBs were used to evaluate correlations between PCBs and total PAHs or metals. No averaging among or within cores was performed prior to the analysis, and no locations were given preference over others in the analysis. In the case of non-detected metals results, the reporting limit was used for the analysis. The data set for each analyte was ranked using the "RANK.AVG" function. The ranked data sets were then compared using the "CORREL" function to return the r_s value. There are no systematic rules for describing correlational strength and, for the purposes of this evaluation, the correlation coefficients were interpreted using the following scheme:

Negligible correlation: $r_s < 0.30$
Weak correlation: $0.30 \le r_s < 0.50$
Moderate correlation: $0.50 \le r_s < 0.70$
Strong correlation: $0.70 \le r_s < 0.90$
Very strong correlation: $0.9 \le r_s$

General observations from this analysis are as follows:

- Total PCBs exhibited no relationship to other chemicals of concern.
- Total PAH-37 exhibited strong correlations with arsenic, chromium, mercury, and zinc.
- Metals generally correlated to each other and to TOC. Strong correlations for zinc with arsenic, cadmium, copper, and lead were observed. Strong correlations were also noted between lead/copper and nickel/lead.

3.2.5 Acid-Volatile Sulfide/Simultaneously Extracted Metals

Ninety-one unique samples from locations SD-001 through SD-013 were collected for analysis of AVS/SEM by EPA Method 821 R-91-100. The samples included surface and subsurface samples from the KKMB. AVS/SEM sample results are discussed herein and presented against sediment benchmark screening values in Table 4.

Equilibrium partitioning theory predicts that the divalent metals partition in sediment between AVS, interstitial (pore) water, benthic organisms, and other sediment phases such as organic carbon (EPA 2005). Biological responses of benthic organisms to these metals in sediments are different across sediments when the sediment concentrations are expressed on a dry-weight basis, but similar when sediments are normalized to ΣSEM-AVS (the summation included the detected results and one-half of the quantitation limit for nondetected results). The difference between the sum of the molar concentrations of SEM (ΣSEM, the metal extracted in the AVS extraction procedure) minus the molar concentration of AVS tends to be a better predictor of potential toxicity (EPA 2005). The potential for toxicity can be further refined by normalizing to the organic carbon content of the sediment as follows:

$$(\Sigma SEM\text{-}AVS)/f_{oc}$$

Where

- ΣSEM is the molar sum of the concentrations of cadmium, copper, lead, nickel, and zinc in micromoles per gram (µmol/g)
- AVS in µmol/g
- f_{oc} is the fraction of organic carbon

The results provide benchmarks for potential toxicity to benthic organisms (EPA 2005), as follows:

- If $(\Sigma SEM\text{-}AVS)/f_{oc}$ is less than 130 micromoles per gram of organic carbon (µmol/g_{oc}), then sediment should pose low risk of adverse biological effects due to cadmium, copper, lead, nickel, or zinc.
- If 130 µmol/g_{oc} < $(\Sigma SEM\text{-}AVS)/f_{oc}$ < 3,000 µmol/g_{oc}, then sediment may have adverse biological effects due to cadmium, copper, lead, nickel, or zinc.
- If $(\Sigma SEM\text{-}AVS)/f_{oc}$ > 3,000 µmol/g_{oc}, then adverse biological effects due to cadmium, copper, lead, nickel, or zinc is expected.

The ΣSEM and AVS results presented in Table 4 were compared against two sediment benchmark criteria: (1) ΣSEM/AVS and (2) $(\Sigma SEM\text{-}AVS)/f_{oc}$. Under the first screening criterion, ΣSEM/AVS ratio, if equal molar concentrations of ΣSEM and AVS are present, then there are no excess metals (ΣSEM) available to cause toxicity. For ΣSEM/AVS ratios greater than 1, the potential for metal toxicity exists from the excess metals (ΣSEM). Less than 25 percent of the study area samples (23 of 95 samples) had ΣSEM/AVS ratios greater than 1, indicating a low potential for metal toxicity. Given the inherent limitations of this screening criterion (for example, the ratio overestimates metal availability under some environmental conditions), further evaluation was performed using the carbon normalized factor $\Sigma(SEM - AVS)/f_{oc}$. Since metal complexation with organic matter (carbon) reduces bioavailability, this factor improves the prediction of toxicity.

Of the 91 samples collected within the KKMB, only one sample (SD-012-1.5/2.5 [130.18 µmol/g_{oc}]) exceeded the 130-µmol/g_{oc} criterion. The sediment concentrations of metals in SD-012 were all above the TEC (except for the deepest sediments), which combined with the exceedance of the 130-µmol/g_{oc} criterion, indicate that the sediments at this location may pose a risk of adverse biological effects. However, overall, the majority of samples in the project area show low concentrations of the AVS/SEM metals.

3.2.6 WDNR Toxicity Test Results

Bulk sediment and river water was collected for toxicity testing and provided to the Wisconsin State Laboratory of Hygiene (WSLOH). Bulk sediment was collected from two locations (KKMB-SD-010 and KKMB-SD-012) located within the mooring basin, with the third location (KKMB-SD-014) located upstream of the project area to represent background conditions associated with the Solvay Site (Figure 2). Locations KKMB-SD-012 and KKMB-SD-014 included surface sample (0.0 to 0.5 foot bss) and a subsurface sample (0.5 to 5.0 foot bss), while location KKMB-SD-010 only included a surface sediment sample. Each toxicity sample required 5 gallons of sediment per sample interval. Sediment for the surface sample interval was collected using a petite ponar sampler. Sediments for the subsurface sample were collected using vibracore technology. The appropriate volume for subsurface samples was obtained by collecting multiple cores at the location. Sediment collected for surface and subsurface samples was transferred directly into WSLOH-supplied 5-gallon buckets. Native river water for elutriate testing associated with the toxicity analysis was collected from the Kinnickinnic River at location KKMB-SD-014 into WSLOH-supplied containers.

Split samples were also collected from each bucket by CH2M and were submitted for chemical analysis. Representative split samples were collected using a small manual coring tool advanced through the entire sediment profile of each toxicity sample bucket. WSLOH reports that the toxicity sediment samples were thoroughly mixed in the 5-gallon bucket prior to subsampling for their own chemical analyses.

The following discussion is based on a report provided by the WSLOH. The toxicity testing was conducted as part of a pilot toxicity test carried out by WDNR. A full report will be prepared by WDNR and available under separate cover.

Whole-sediment toxicity tests were conducted using the 28-day amphipod (*Hyalella Azteca)* and 10-day midge (*Chironomus dilutus* [formally known as C. *tentans*]) test protocols detailed in USEPA (2000). Sample results for survival and growth were compared to the laboratory control using a one-way analysis of variance (ANOVA) followed by a multiple comparison test (Student-Newman-Keuls) identifying differences in survival and growth among site samples, as well as to the control.

Sediment samples used in the toxicity tests were analyzed for suspected site contaminants based on the contaminants of concern at the adjacent Solvay Site (total metals, total cyanide, PAHs [including alkylated PAHs], and AVS) and conventional parameters (PCBs and TOC) used for screening sediment. Samples obtained by the project at the same locations as the toxicity samples, along with the split samples collected from the toxicity sample buckets, were submitted to and analyzed by Eurofins as specified in the FSP (CH2M 2015b). The toxicity samples were submitted to and analyzed by WSLOH. Analytical results from both laboratories are presented in the following subsections.

3.2.6.1 Midge Results

The midges, C. *dilutus*, were exposed to sediment samples for 10 days with 10 organisms per beaker and 8 replicates per sediment site. Dissolved oxygen, pH, and temperature of the overlying water were recorded daily. Hardness, alkalinity, ammonia, and conductivity of overlying water were measured at the beginning and at the end of the test (day 0 and day 10, respectively). On day 10, the organisms were recovered from the sediment to determine the number of survivors. Surviving organisms were subsequently dried overnight at 100 degrees Celsius (°C) and weighed to determine dry weight. The organisms were then ashed at 550°C for a minimum of 2 hours and weighed to determine ash-free dry weight (AFDW) (EPA 2000). There were no noted deviations from established test protocols. All tests met performance criteria (EPA 2000) and are considered valid and interpretable.

Midge survival results are presented in Table 6. Survival ranged from 62.5 percent (SD014-0.5-5.0) to 87.5 percent (SD010-0-0.5 and SD012-0-0.5). Laboratory control survival was 87.5 percent. Survival for

SD014-0.5-5.0 was 71 percent of control, which was a statically significant reduction relative to control (P = 0.05) (Figure 5a) [Note: In figures comparing sample responses to control, those labeled with the same letter as the control are not statistically different from the control. Samples with the same letter but different from the control are not statistically different from each other]. All other samples showed survival similar to the control.

The results of the growth endpoint are presented in Table 7. Growth ranged from 0.53 milligram (mg) AFDW per larval (SD014-0.5-5) to 1.07 mg AFDW per larval (SD012-0-0.5). Control sediment averaged 1.24 mg AFDW per larva. All samples had significantly lower growth compared to the laboratory control, ranging from 42 to 71 percent of control, except SD012-0-0.5.0 at 76 percent of control) (Figure 5b).

3.2.6.2 Amphipod Results

The amphipods, *H. azteca*, were exposed to sediment samples for 28 days with 10 organisms per beaker and 8 replicates per sediment site. Dissolved oxygen, pH, and temperature of the overlying water were recorded daily. Hardness, alkalinity, ammonia, and conductivity of overlying water were measured at the beginning and at the end of the test (day 0 and day 28, respectively). On day 28, the organisms were recovered from the sediment to determine the number of survivors in each replicate. Survivors were subsequently dried overnight at 100°C and weighed to determine dry weight (EPA 2000). All tests met performance criteria (EPA 2000) and are considered valid and interpretable.

Amphipod survival results are presented in Table 8. Survival ranged from 85 percent (SD012-0.5-5.0) to 92.5 percent (SD010-0-0.5). Laboratory control survival was 96.3 percent. No sample showed a significant reduction in survival relative to control (P = 0.05) (Figure 6a).

The results of the growth endpoint are presented in Table 9. Growth ranged from 0.20 mg DW per survivor (SD010-0-0.5) to 0.30 mg DW per survivor (SD012-0-0.5). Control sediment averaged 0.47 mg AFDW per survivor. All samples had significantly lower growth compared to the laboratory control, ranging from 42 to 64 percent of control (P = 0.05) (Figure 6b).

3.2.6.3 Toxicity Test Results and Sediment Analytical Results

The results from the contract laboratory analysis for PAHs, metals, and AVS/SEM are presented in Tables 10a through 10c. The results from the split samples analyzed by the WSLOH are presented in Table 11.

A comparison of the split sample results shows agreement in most of the analyses, except for individual and total PAHs and arsenic. The WSLOH data for total PAHs-16 priority pollutants is as much as 29 times greater than the split results; however, the split sample results that were analyzed at Eurofins show agreement with the rest of the Eurofins sediment data set. As detailed in the DUR (Appendix A), 100 percent of the Eurofins laboratory data were reviewed, verified, and validated by CH2M following the Stage 2a validation level, and 20 percent at Stage 2b, according to the *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009). The Eurofins data set was submitted to EPA's Quality Assurance Technical Support contractor, CB&I Federal Services, LLC, for an independent review of completeness and to verify that the data validation had been conducted in accordance with the EPA National Functional Guidelines and project QAPP. The results of the validation review are included in the DUR (Appendix A). The WSLOH data were also sent to a third-party for review and validation to assess its usability. The scope of data validation does not evaluate potential error caused by different sample preparation and instrumental methods.

Due to the variation between the WSLOH and Eurofins reported results for PAHs and arsenic, the potential effect of toxicity related to these two parameters is not discussed in the report. Additional investigation of the uncertainties will be conducted by WDNR and reported later.

3.2.7 Data Quality Summary

The DUR (Appendix A) summarizes the quality evaluation conducted for this field investigation. The report provides a general data quality assessment designed to summarize data issues, if present. The primary conclusions from the DUR are as follows:

- The staff gauges installed by ARCADIS in 2012 as part of the Solvay Site investigation activities were planned to be used during this investigation; however, at the time of field activities, none of them could be located. As an alternative, the NOAA staff gauge in Milwaukee harbor was used to determine the water elevation at the time of sample collection. This will not adversely affect the data usability.
- An increased number of samples was collected due to greater sediment thicknesses than anticipated. The increased number of samples provides a more representative distribution of sampling data where sediment was present, and will not adversely affect the data usability.
- The coordinates that were collected during core collection are submeter accurate.
- The sediment sampling methods were modified at location SD-001 based on the presence of utilities and the substrate type (no soft sediment); therefore, a ponar was used based on consultation with and approval by EPA, and will not adversely affect the data usability.
- Although field duplicate and MS/MSD QC samples were collected slightly below the frequencies identified in the FSP and DQOs for PCBs, the accuracy and precision indicated good data quality.
- The precision and accuracy of the data, as measured by field and laboratory QC indicators, indicate that the data quality objectives were met for all parameters, except AVS/SEM mercury. The AVS/SEM mercury data were rejected and should not be used to make project decisions.
- The completeness objective of 90 percent was met for all method/analyte combinations, with the exception of AVS/SEM mercury.

SECTION 4

Conclusions

4.1 Nature and Extent of Contamination

Analytical results from the 91 unique field samples were screened against applicable Wisconsin consensus-based sediment quality guidelines. The following list summarizes contamination found and results relative to the screening against the WDNR CBSQG values:

- Range of total PAH-18 (surface): 1 to 108 milligrams per kilogram (mg/kg) (average 18 mg/kg). Non-TOC-normalized surface sediment exceeds the PEC at 3 locations and exceeds the TEC at 12 locations.
- Range of total-PAH-18 (subsurface): 0.02 to 192 mg/kg (average 24 mg/kg). Nineteen non-TOC-normalized results exceed the PEC at 4 locations, and 63 subsurface results exceed the TEC (representing all 10 locations).
- Range of total PCB (surface): 0.075 to 1.28 mg/kg (average 0.67 mg/kg). All three surface samples exceeded the TEC when not normalized for TOC.
- Range of total PCB (subsurface): below detection limit to 3.13 mg/kg. Subsurface total PCB results from locations SD-007 and above 7.5 feet below sediment surface in SD-013 exceeded the TEC when normalized for TOC, and largely exceeded the PEC when not normalized for TOC.
- Widespread exceedances of the TEC values for metals were observed, with 82 of the 91 sediment samples exceeding for at least 1 metal, and 71 of 91 samples exceeding the PEC for at least 1 metal (Table 3).
- PEC exceedances are sporadic for arsenic, copper, and nickel and moderate for mercury.
- Cadmium, chromium, lead, and zinc frequently exceeded the PEC, which is not unexpected in an urban, industrial watershed.
- Total PCBs exhibited no relationship to other chemicals of concern.
- Total PAH-37 exhibits strong correlations with arsenic, chromium, mercury, and zinc.
- Metals generally correlated to each other and to TOC. Strong correlations for zinc with arsenic, cadmium, copper, and lead were observed. Strong correlations were also noted between lead/copper and nickel/lead.
- One sample exceeded the 130-µmol/g_{oc} criterion used to assess AVS/SEM data, indicating that the sediments at this location may pose a risk of adverse biological effects. The majority of samples in the project area show low concentrations of the AVS/SEM metals.

4.2 Sediment Toxicity

- Whole-sediment toxicity tests using the 28-day amphipod (*H. azteca*) and 10-day midge (*C. dilutus*) were conducted on 3 site samples from 2 different depth intervals.
- Test results show limited impact on survival, with only one midge result being statistically lower than control survival.
- Reduction in growth was seen in all site samples for both species relative to control.

4.3 Key Findings and Recommendations

The following are key findings and elements recommended to support and define opportunities for further investigation activities in the study area:

- The results of the sediment characterization provide a preliminary assessment of contamination in the study area. This investigation indicates moderate to significant sediment contamination for PAHs, PCBs, and in particular metals (see Figures 3 and 4). Due to contamination levels in sediment further investigation including remedial alternatives analysis is likely be warranted.
- Further assessment and investigation is recommended in order to properly delineate the lateral and vertical extents of impacted sediment and overall sediment thickness within the study area.
- Investigation activities recommended to be conducted within the study area in addition to supplementary sediment sampling includes bathymetric survey, sediment thickness survey and benthic and/or a habitat assessment.

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Tables

Table 1. Summary of Sediment and Soil Sampling Activities

Kinnickinnic River Mooring Basin Site Characterization

Sample Location	Date	Time	Easting (WI SPS)	Northing (WI SPS)	Probed Thickness (ft)	Core Penetration (ft)	Core Recovery (ft)	Core Recovery (%)	Water Depth (ft)	Native Clay Depth (ft)	Water Surface Elevation[a] (ft)	Sediment Surface Elevation[a] (ft)	Native Clay Elevation[a] (ft)	NAPL Observations Visual	PID	Odor	Analysis Summary PCB Aroclors	Toxicity	Other Analytical	General Observations
KKMB-SD-001	5/14/2015	9:48	2561182.70	377553.63	0.5	--	--	--	32.0	--	579.6	547.6	--	N	--	N			X	Ponar grab sample collected due to minimal sediment present
KKMB-SD-002	5/13/2015	17:06	2561123.01	377368.27	3.5	6.0	3.9	65%	34.2	--	579.5	545.3	--	N	1.3	Y			X	
KKMB-SD-003	5/14/2015	8:52	2561480.88	376891.68	4.5	7.0	5.9	84%	33.0	5.6	579.8	546.8	541.2	N	0.8	N			X	
KKMB-SD-004	5/13/2015	14:39	2561877.80	376223.02	3.5	5.8	2.3	40%	28.0	--	579.6	551.6	--	N	0	N	X		X	
KKMB-SD-004B	5/13/2015	14:08	2561877.80	376223.02	3.5	5.5	3.8	69%	28.0	--	579.6	551.6	--	N	0	N	X		X	Second attempt at location. Core retained due to greater recovery. Surface sample (0.0 to 0.5 foot) lost while on vessel.
KKMB-SD-005	5/13/2015	9:56	2562085.12	375467.06	4.3	8.5	6.4	75%	29.8	--	579.6	549.7	--	N	0	Y			X	
KKMB-SD-006	5/11/2015	17:23	2562219.62	375082.32	4.3	9.3	8.0	86%	27.2	--	579.5	552.3	--	N	0	N			X	
KKMB-SD-007	5/11/2015	12:41	2562330.50	374807.30	4.5	4.5	4.0	89%	26.8	--	579.5	552.7	--	N	0	N	X		X	
KKMB-SD-008	5/11/2015	16:18	2562137.04	375008.74	5.3	5.5	5.3	96%	28.0	4.6	579.5	551.5	546.9	N	0	N			X	
KKMB-SD-009	5/13/2015	8:15	2561844.48	375368.88	7.3	11.8	11.8	100%	29.8	--	579.6	549.7	--	N	3.8	Y			X	Second attempt at location.
KKMB-SD-010	5/14/2015	11:52	2561558.96	376018.69	6.3	5.0	5.0	100%	28.1	--	579.8	551.7	--	N	0	N		X	X	
KKMB-SD-011	5/13/2015	15:37	2561256.24	376487.75	6.5	8.0	4.0	50%	28.7	3.1	579.6	551.0	547.9	N	0	N			X	
KKMB-SD-012	5/14/2015	14:59	2560906.13	376478.08	8.0	11.5	12.2	106%	27.0	--	579.8	552.8	--	N	0	Y		X	X	
KKMB-SD-013	5/13/2015	17:46	2560804.00	376674.61	9.0	12.5	13.0	104%	24.9	--	579.5	554.6	--	N	3.1	Y	X		X	
KKMB-SD-014[b]	5/14/2015	10:25	2560266.02	376240.56	--	--	--	--	15.5	--	579.8	564.3	--	N	--	--		X		

[a] Elevations reported in low water datum elevation 577.5 feet IGLD85 at date and time nearest to sampling per NOAA staff gauge station No. 9087057 in Milwaukee Harbor. http://glakesonline.nos.noaa.gov/monitor.html Accessed: 05/19/2015.

[b] Bulk sediment toxicity location only.

ft = feet

IGLD85 = International Great Lakes Datum of 1985

NAPL = nonaqueous phase liquid

WI SPS = Wisconsin State Plane South coordinate system

Table 2. Analytical Results for Organics, TEC, and PEC Exceedances for KKMB Samples

Kinnickinnic River Mooring Basin Site Characterization

Core Location	Sample Name	Date	Depth Interval[5]	Total PCBs[1,4] mg/kg	Total PCBs[1] mg/kg$_{oc}$	Total PAH-18[2,4] mg/kg	Total PAH-18[2] mg/kg$_{oc}$	Total PAH-37[3] mg/kg	Total Organic Carbon mg/kg	2-Methyl naphthalene µg/kg	Acenaphthene µg/kg	Acenaphthylene µg/kg	Anthracene µg/kg	Benzo(a) anthracene µg/kg	Benzo(a) pyrene µg/kg	Benzo(b) fluoranthene µg/kg	Benzo(e) pyrene µg/kg	Benzo(g,h,i) perylene µg/kg	Benzo(k) fluoranthene µg/kg	Chrysene µg/kg	Dibenzo(a,h) anthracene µg/kg	Fluoranthene µg/kg
			CAS No.	87-86-5	87-86-5	-	-	-	-	91-57-6	83-32-9	208-96-8	120-12-7	56-55-3	50-32-8	205-99-2	192-97-2	191-24-2	207-08-9	218-01-9	53-70-3	206-44-0
			Wisconsin TEC	0.06	0.060	1.61	1.61	-	-	20.2	6.7	5.9	57.2	108	150	240	150	170	240	166	33	423
			Wisconsin PEC	0.676	0.676	22.8	22.8	-	-	201	89	128	845	1050	1450	13400	1450	3200	13400	1290	135	2230
KKMB-SD-001	SD-001-0.0/0.5	5/14/2015	0.0-0.5	--	--	**2.1**	0.3	3.1	70500	32	17	39	53	130	150	200	120	120	150	170	37	290
KKMB-SD-002	SD-002-0.0/0.5	5/14/2015	0.0-0.5	--	--	**108**	**11**	182	97300	1800 J	1000 J	2100 J	4700 J	8800 J	7000 J	5800 J	4600 J	3500 J	7200 J	8800 J	1300 J	16000 J
KKMB-SD-002	SD-002-0.5/1.5	5/14/2015	0.5-1.5	--	--	**82**	**11**	136	78100	1200	620	1400	2800	6800	5300	5500	3700	2800	4900	7000	1200	13000
KKMB-SD-002	SD-002-1.5/2.5	5/14/2015	1.5-2.5	--	--	**35**	**4.8**	58	73100	600	330	570	1000	2600	2300	2300	1600	1200	2100	2900	480	5200
KKMB-SD-002	SD-002-2.5/3.9	5/14/2015	2.5-3.9	--	--	**49**	**9.1**	78	53900	960	680	740	1900	3700	2800	2600	1800	1400	2800	3600	480	7300
KKMB-SD-003	SD-003-0.0/0.5	5/14/2015	0.0-0.5	--	--	**77**	**17**	121	46700	1600	1000	1500	2400	6000	5000	4800	3400	2600	4800	6100	890	10000
KKMB-SD-003	SD-003-0.5/1.5	5/14/2015	0.5-1.5	--	--	**13**	**1.8**	21	74000	160 J	130 J	260 J	400 J	1200 J	1000 J	1000 J	660 J	510 J	900 J	1200 J	190 J	2000 J
KKMB-SD-003	SD-003-1.5/2.5	5/14/2015	1.5-2.5	--	--	**29**	**5.0**	44	57600	700	360	450	930	2100	1700	1500	1100	970	1700	2100	370	4500
KKMB-SD-003	SD-003-2.5/3.5	5/14/2015	2.5-3.5	--	--	**26**	**13**	40	19900	660	360	420	910	2000	1600	1400	980	830	1500	1900	310	4200
KKMB-SD-003	SD-003-3.5/4.5	5/14/2015	3.5-4.5	--	--	**52**	**12**	78	45500	1200	750	800	1700	3900	2900	3500	1800	1700	2400	3600	620	8800 J
KKMB-SD-003	SD-003-4.5/5.6	5/14/2015	4.5-5.6	--	--	**93**	**14**	135	67600	1600	1000	1400	2800	7700 J	5300	5400	3100	2900	4600	7200 J	1000	17000 J
KKMB-SD-003	SD-003-5.6/5.9	5/14/2015	5.6-5.9	--	--	**2.0**	0.9	4.1	23200	32	100	15	97	72	37	42	28	26	36	72	9.3	500
KKMB-SD-004	SD-004-0.0/0.5	5/13/2015	0.0-0.5	**0.075**	0.032	1.0	0.4	1.9	23700	17 J	16 J	11 J	37 J	55 J	63 J	74 J	55 J	52 J	58 J	74 J	13 J	140 J
KKMB-SD-004	SD-004-0.5/1.5	5/13/2015	0.5-1.5	0.042	0.013	0.68	0.21	0.96	32000	7.5 J	15 UJ	6.2 J	11 J	41 J	52 J	56 J	43 J	46 J	55 J	53 J	11 J	90 J
KKMB-SD-004	SD-004-1.5/2.3	5/13/2015	1.5-2.3	0.014 U	0.005 U	0.036	0.014	0.082	26000	2.8 UJ	2.8 UJ	2.8 UJ	2.8 UJ	1.7 J	2.2 J	2.4 J	1.7 J	1.9 J	1.8 J	2.6 J	2.8 UJ	4 J
KKMB-SD-004	SD-004B-0.5/1.5	5/13/2015	0.5-1.5	0.015 U	0.005 U	0.083	0.03	0.14	30000	2.8 UJ	2.8 UJ	2.8 UJ	1.5 J	5.2 J	5.8 J	6.7 J	4.4 J	4.7 J	5.2 J	7 J	2.8 UJ	13 J
KKMB-SD-004	SD-004B-1.5/3.8	5/13/2015	1.5-3.8	0.015 U	0.005 U	0.081	0.03	0.13	32100	8.1 J	2.4 J	2.8 UJ	3.3 J	1.3 J	1.6 J	3.1 J	1.2 J	1.5 J	3.1 J	1.3 J	2.8 UJ	2.5 J
KKMB-SD-005	SD-005-0.0/0.5	5/13/2015	0.0-0.5	--	--	**13**	**2.8**	20	46100	150	81	180	250	930	1000	1000	770	770	940	1100	220	1800
KKMB-SD-005	SD-005-0.5/1.5	5/13/2015	0.5-1.5	--	--	**19**	**2.6**	33	71000	260	120	270	390	1500	1400	1500	1100	940	1200	1700	290	2600
KKMB-SD-005	SD-005-1.5/2.5	5/13/2015	1.5-2.5	--	--	**11**	**2.5**	19	43100	180 J	85 J	160 J	310 J	850 J	780 J	840 J	580 J	520 J	640 J	920 J	160 J	1600 J
KKMB-SD-005	SD-005-2.5/3.5	5/13/2015	2.5-3.5	--	--	1.3	0.5	2.2	25900	18 J	14 J	24 J	37 J	100 J	99 J	100 J	73 J	73 J	85 J	120 J	22 J	200 J
KKMB-SD-005	SD-005-3.5/4.5	5/13/2015	3.5-4.5	--	--	0.71	**11.4**	1.2	619	11 J	6.5 J	13 J	20 J	54 J	50 J	47 J	39 J	32 J	52 J	61 J	9.4 J	110 J
KKMB-SD-005	SD-005-4.5/5.5	5/13/2015	4.5-5.5	--	--	0.47	0.24	0.81	19700	12 J	11 U	9 J	13 J	32 J	31 J	30 J	25 J	25 J	30 J	37 J	6.8 J	69 J
KKMB-SD-005	SD-005-5.5/6.4	5/13/2015	5.5-6.4	--	--	0.68	0.1	1.1	62800	25 J	20 UJ	15 J	16 J	41 J	45 J	35 J	32 J	33 J	42 J	48 J	9.9 J	92 J
KKMB-SD-006	SD-006-0.0/0.5	5/11/2015	0.0-0.5	--	--	**34**	**7.0**	53	48700	570 J	270 J	460 J	940 J	2600 J	2300 J	4000 J	1800 J	1900 J	1000 J	2500 J	840 J	4500 J
KKMB-SD-006	SD-006-0.5/1.5	5/11/2015	0.5-1.5	--	--	**6.4**	**1.8**	11	36400	130 J	110 J	85 J	170 J	460 J	440 J	490 J	350 J	280 J	420 J	540 J	81 J	860 J
KKMB-SD-006	SD-006-1.5/2.5	5/11/2015	1.5-2.5	--	--	**18**	**3.2**	29	54200	220 J	99 J	230 J	440 J	1500	1500	1500	1000	920	1200	1600	320 J	2200
KKMB-SD-006	SD-006-2.5/3.5	5/11/2015	2.5-3.5	--	--	**6.8**	1.2	10	56100	83	46	76	140	500	540	580	430	400	500	630	120	800
KKMB-SD-006	SD-006-3.5/4.5	5/11/2015	3.5-4.5	--	--	**7.8**	1.5	11	50900	86	48	93	150	620	630	650	480	470	460	710	130	920
KKMB-SD-006	SD-006-4.5/5.5	5/11/2015	4.5-5.5	--	--	**13**	**1.9**	25	66700	120	98	160	330	1200	1000	1100	750	580	600	1300	250	1900
KKMB-SD-006	SD-006-5.5/6.5	5/11/2015	5.5-6.5	--	--	**7.5**	1.1	19	66200	180	94	72	200	600	420	470	340	250	360	680	84	1400
KKMB-SD-006	SD-006-6.5/7.5	5/11/2015	6.5-7.5	--	--	**2.5**	0.8	7.9	30100	100 J	25 J	24 J	56 J	170 J	140 J	200 J	150 J	120 J	120 J	270 J	48 J	260 J
KKMB-SD-006	SD-006-7.5/8.0	5/11/2015	7.5-8.0	--	--	0.54	0.4	2.0	13300	37	4.9 J	6.3 J	11	31	24	37	27	24	21	59	9 J	48
KKMB-SD-007	SD-007-0.0/0.5	5/11/2015	0.0-0.5	**0.65**	**0.12**	**3.7**	0.7	5.1	55300	29	24	33	51	250	310	380	260	260	280	340	65	400
KKMB-SD-007	SD-007-0.5/1.5	5/11/2015	0.5-1.5	**0.42**	**0.07**	**2.7**	0.5	3.6	57400	19	12	23	36	170	230	280	200	200	220	240	48	340
KKMB-SD-007	SD-007-1.5/2.5	5/11/2015	1.5-2.5	**3.13**	**0.63**	**4.9**	1.0	7.7	49900	49	32	39	92	340	390	440	320	290	360	440	84	660
KKMB-SD-007	SD-007-2.5/3.5	5/11/2015	2.5-3.5	**1.17**	**0.30**	**6.9**	**1.8**	9.8	39000	75	46	63	110	500	540	540	460	450	510	590	120	960
KKMB-SD-007	SD-007-3.5/4.0	5/11/2015	3.5-4.0	**1.12**	**0.31**	**9.7**	**2.6**	14	36500	110	86	67	200	740	710	680	530	510	680	850	130	1500
KKMB-SD-008	SD-008-0.0/0.5	5/11/2015	0.0-0.5	--	--	**8.0**	1.5	12	54100	47	58	47	120	600	560	710	470	420	620	730	100	1400
KKMB-SD-008	SD-008-0.5/1.5	5/11/2015	0.5-1.5	--	--	**5.5**	0.9	7.8	59200	34	33	59	100	450	440	500	340	300	400	540	96	810
KKMB-SD-008	SD-008-1.5/2.5	5/11/2015	1.5-2.5	--	--	**5.6**	1.0	8.5	53400	68	46	66	110	420	430	490	340	310	450	500	81	640 J
KKMB-SD-008	SD-008-2.5/3.5	5/11/2015	2.5-3.5	--	--	**18**	**3.5**	31	52600	420 J	160 J	240 J	580 J	1400 J	1200 J	1500 J	860 J	820 J	1100 J	1500 J	280 J	3000 J
KKMB-SD-008	SD-008-3.5/4.6	5/11/2015	3.5-4.6	--	--	**7.7**	**1.7**	11	44900	99	55	200	150	730 J	660 J	610 J	410	400	560	730 J	120	930 J
KKMB-SD-008	SD-008-4.6/5.3	5/11/2015	4.6-5.3	--	--	0.043	0.12	0.14	3600	1.6 J	1.9 U	0.8 J	1.9 U	2.7	2.3	2.6	2.5	2.5	2	5.9	1.9 U	4.9
KKMB-SD-009	SD-009-0.0/0.5	5/13/2015	0.0-0.5	--	--	**15**	**2.2**	21	65500	150	97	130	320	1100	1200	1300	900	870	1100	1300	240	1800
KKMB-SD-009	SD-009-0.5/1.5	5/13/2015	0.5-1.5	--	--	**14**	**2.9**	21	49700	160	95	190	340	1100	1100	1100	850	740	1100	1300	230	1900
KKMB-SD-009	SD-009-1.5/2.5	5/13/2015	1.5-2.5	--	--	**11**	**1.6**	17	68600	160 J	89 J	110 J	280 J	710 J	690 J	840 J	570 J	520 J	640 J	920 J	150 J	1800 J
KKMB-SD-009	SD-009-2.5/3.5	5/13/2015	2.5-3.5	--	--	**13**	**1.8**	20	72400	220 J	100 J	140 J	300 J	830 J	850 J	1000 J	710 J	640 J	820 J	1100 J	190 J	1900 J
KKMB-SD-009	SD-009-3.5/4.5	5/13/2015	3.5-4.5	--	--	**19**	**3.3**	31	56700	380	180	170	510	1100	1200	1400	1000	880	1300	1500	240	2900
KKMB-SD-009	SD-009-4.5/5.5	5/13/2015	4.5-5.5	--	--	**20**	**2.3**	32	87600	290	150	230	500	1500	1500	1500	1100	1100	1300	1600	310	2900
KKMB-SD-009	SD-009-5.5/6.5	5/13/2015	5.5-6.5	--	--	**21**	**3.3**	36	65300	340 J	190 J	270 J	600 J	1500 J	1300 J	1200 J	1000 J	810 J	1100 J	1700 J	240 J	4900
KKMB-SD-009	SD-009-6.5/7.5	5/13/2015	6.5-7.5	--	--	**12**	**2.1**	21	58900	220 J	130 J	190 J	310 J	910 J	830 J	760 J	620 J	530 J	840 J	1000 J	170 J	1800 J
KKMB-SD-009	SD-009-7.5/8.5	5/13/2015	7.5-8.5	--	--	0.88	1.3	1.5	6850	13 J	13 J	17 J	24 J	61 J	56 J	57 J	40 J	39 J	45 J	66 J	12 J	160 J
KKMB-SD-009	SD-009-8.5/9.5	5/13/2015	8.5-9.5	--	--	0.11	0.51	0.24	2160	9.9 U	9.9 U	4.6 J	9.9 U	6.1 J	4.9 J	4.9 J	4.7 J	4.5 J	4.9 J	8.4 J	9.9 U	14
KKMB-SD-009	SD-009-9.5/10.5	5/13/2015	9.5-10.5	--	--	0.020	0.093	0.056	2190	2 U	2 U	2 U	2 U	0.8 J	2 U	0.8 J	1 J	2 U	2 U	2.2	2 U	1.5 J
KKMB-SD-009	SD-009-10.5/11.8	5/13/2015	10.5-11.8	--	--	0.020	0.117	0.053	1740	2 U	2 U	2 U	2 U	2 U	2 U	2 U	1.1 J	2 U	2 U	2.3	2 U	1.1 J
KKMB-SD-010	SD-010-0.0/0.5	5/14/2015	0.0-0.5	--	--	**2.9**	0.6	4.0	48800	30 J	17 J	44	65	200	230	240	180	170	240	260	49	380
KKMB-SD-010	SD-010-0.5/1.5	5/14/2015	0.5-1.5	--	--	**3.7**	0.8	5.2	47800	45	21 J	59	87	260	280	300	220	190	290	330	57	490
KKMB-SD-010	SD-010-1.5/2.5	5/14/2015	1.5-2.5	--	--	**3.3**	0.7	4.8	46800	32 J	24 J	52	91	230	230	250	180	150	220	290	43	500
KKMB-SD-010	SD-010-2.5/3.5	5/14/2015	2.5-3.5	--	--	**2.8**	0.4	3.9	72300	27 J	21 J	48	78	200	210	240	160	140	200	250	42	370
KKMB-SD-010	SD-010-3.5/5.0	5/14/2015	3.5-5.0	--	--	**17**	**2.7**	23	60200	170 J	95 J	240	450	1200	1200	1500	950	760	1100	1500	230 J	2400
KKMB-SD-011	SD-011-0.0/0.5	5/13/2015	0.0-0.5	--	--	**5.5**	1.3	7.6	42900	68 J	30 J	52 J	110 J	370 J	410 J	430 J	310 J	310 J	410 J	470 J	84 J	760 J
KKMB-SD-011	SD-011-0.5/1.5	5/13/2015	0.5-1.5	--	--	**6.4**	1.4	9.5	45800	170 J	37 J	60 J	140 J	440 J	470 J	460 J	350 J	330 J	470 J	530 J	94 J	830 J
KKMB-SD-011	SD-011-1.5/2.5	5/13/2015	1.5-2.5	--	--	**18**	**4.1**	26	44400	390 J	120 J	190 J	370 J	1300 J	1300 J	1600 J	1000 J	940 J	1100 J	1600 J	250 J	2000 J
KKMB-SD-011	SD-011-2.5/3.1	5/13/2015	2.5-3.1	--	--	**7.3**	1.1	11	68700	84 J	44 J	80 J	170 J	560 J	540 J	520 J	400 J	360 J	520 J	650 J	99 J	1000 J
KKMB-SD-011	SD-011-3.1/4.0	5/13/2015	3.1-4.0	--	--	0.26	0.15	0.46	16800	13 UJ	13 UJ	13 UJ	9.6 J	14 J	12 J	11 J	8.8 J	9.2 J	11 J	17 J	13 UJ	46 J
KKMB-SD-012	SD-012-0.0/0.5	5/14/2015	0.0-0.5	--	--	**5.5**	1.1	7.4	51000	61	41	69	130	370	420	440	300	250	350	490	71	920
KKMB-SD-012	SD-012-0.5/1.5	5/14/2015	0.5-1.5	--	--	**4.9**	0.9	6.5	53200	44	31 J	68	100	320	370	460	300	280	350	420	76	690
KKMB-SD-012	SD-012-1.5/2.5	5/14/2015	1.5-2.5	--	--	**8.3**	**2.1**	11	40500	83	50	120	180	560	640	780	510	470	640	720	140	1100

Table 2. Analytical Results for Organics, TEC, and PEC Exceedances for KKMB Samples
Kinnickinnic River Mooring Basin Site Characterization

Core Location	Sample Name	Date	Depth Interval[5]	Total PCBs[1,4] mg/kg	Total PCBs[1] mg/kg$_{oc}$	Total PAH-18[2,4] mg/kg	Total PAH-18[2] mg/kg$_{oc}$	Total PAH-37[3] mg/kg	Total Organic Carbon mg/kg	2-Methyl naphthalene µg/kg	Acenaphthene µg/kg	Acenaphthylene µg/kg	Anthracene µg/kg	Benzo(a) anthracene µg/kg	Benzo(a) pyrene µg/kg	Benzo(b) fluoranthene µg/kg	Benzo(e) pyrene µg/kg	Benzo(g,h,i) perylene µg/kg	Benzo(k) fluoranthene µg/kg	Chrysene µg/kg	Dibenzo(a,h) anthracene µg/kg	Fluoranthene µg/kg
			CAS No.	87-86-5	87-86-5	-	-	-	-	91-57-6	83-32-9	208-96-8	120-12-7	56-55-3	50-32-8	205-99-2	192-97-2	191-24-2	207-08-9	218-01-9	53-70-3	206-44-0
			Wisconsin TEC	0.06	0.060	1.61	1.61	-	-	20.2	6.7	5.9	57.2	108	150	240	150	170	240	166	33	423
			Wisconsin PEC	0.676	0.676	22.8	22.8	-	-	201	89	128	845	1050	1450	13400	1450	3200	13400	1290	135	2230
KKMB-SD-012	SD-012-2.5/3.5	5/14/2015	2.5-3.5	--	--	**11**	**2.6**	15	42800	130 J	63 J	160 J	260 J	780 J	860 J	920 J	660 J	590 J	860 J	980 J	170 J	1500 J
KKMB-SD-012	SD-012-3.5/4.5	5/14/2015	3.5-4.5	--	--	**9.8**	**2.0**	15	47800	97	69	150	320	690	660	690	530	420	710	820	190	1300
KKMB-SD-012	SD-012-4.5/5.5	5/14/2015	4.5-5.5	--	--	**36**	**3.8**	52	94300	620	380	510	1100	2500	2300	2500	1800	1100	1900	2900	330	4200
KKMB-SD-012	SD-012-5.5/6.5	5/14/2015	5.5-6.5	--	--	**26**	**7.5**	39	35100	450	210	340	680	1800	1600	1800	1400	940	1300	2200	290	3400
KKMB-SD-012	SD-012-6.5/7.5	5/14/2015	6.5-7.5	--	--	**68**	**5.7**	121	121000	670 J	410 J	1100 J	2300 J	5400 J	4900 J	6300 J	3400 J	3000 J	3800 J	5500 J	1000 J	9900
KKMB-SD-012	SD-012-7.5/8.5	5/14/2015	7.5-8.5	--	--	**80**	**8.4**	139	95500	1300	910	1300	2700	5800	5200	5600	3700	2800	4100	6300	1200	11000 J
KKMB-SD-012	SD-012-8.5/9.5	5/14/2015	8.5-9.5	--	--	**42**	**5.1**	70	81800	540	290	730	1200	3500	3000	3300	2200	1600	2700	3700	550	5600
KKMB-SD-012	SD-012-9.5/10.5	5/14/2015	9.5-10.5	--	--	**33**	**3.6**	54	91600	520 J	280 J	550 J	1000 J	2800 J	2200 J	2100 J	1500 J	900 J	2100 J	2900 J	330 J	3800 J
KKMB-SD-012	SD-012-10.5/12.2	5/14/2015	10.5-12.2	--	--	**14**	**5.3**	23	26700	210	140	280	410	1000	830	840	580	470	780	1100	200	2300
KKMB-SD-013	SD-013-0.0/0.5	5/14/2015	0.0-0.5	**1.28**	**0.23**	**9.4**	**1.7**	14	54700	110	49	81	200	690	780	880	610	570	630	690	160	1200
KKMB-SD-013	SD-013-0.5/1.5	5/14/2015	0.5-1.5	**1.15**	**0.21**	**8.3**	1.5	11	54800	88	43	73	140	660	700	670	530	500	540	780	140	1100
KKMB-SD-013	SD-013-1.5/2.5	5/14/2015	1.5-2.5	**1.21**	**0.23**	**6.5**	1.2	9.0	52000	73	41	69	110	480	520	620	390	380	410	570	100	960
KKMB-SD-013	SD-013-2.5/3.5	5/14/2015	2.5-3.5	**0.88**	**0.15**	**7.9**	1.3	11	59100	93 J	42 J	67 J	130 J	600	640	600	490 J	480 J	580 J	700	130 J	1200
KKMB-SD-013	SD-013-3.5/4.5	5/14/2015	3.5-4.5	**1.06**	**0.19**	**6.2**	1.1	8.2	56500	66 J	30 J	49 J	98 J	470 J	510 J	570 J	360 J	340 J	390 J	570 J	90 J	920 J
KKMB-SD-013	SD-013-4.5/5.5	5/14/2015	4.5-5.5	**0.52**	**0.07**	**8.0**	1.0	11	77900	90	49	87	220	630	610	600	480	450	500	720	140	1200
KKMB-SD-013	SD-013-5.5/6.5	5/14/2015	5.5-6.5	**1.18**	**0.19**	**11**	**1.7**	16	63000	91 J	62 J	87 J	270 J	820 J	840 J	790 J	620 J	600 J	810 J	980 J	190 J	1700 J
KKMB-SD-013	SD-013-6.5/7.5	5/14/2015	6.5-7.5	**0.94**	**0.08**	**27**	**2.3**	43	117000	370	210	270	850	1900	1800	1900	1300	1200	1400	2100	330	3800
KKMB-SD-013	SD-013-7.5/8.5	5/14/2015	7.5-8.5	0.016 U	0.001 U	**78**	**7.4**	120	106000	830 J	550 J	920 J	2400 J	5700 J	4800 J	4700 J	3200 J	3000 J	3900 J	5800 J	900 J	11000 J
KKMB-SD-013	SD-013-8.5/9.5	5/14/2015	8.5-9.5	**0.078**	0.006	**182**	**14**	291	127000	2500 J	1300 J	3200 J	5700 J	14000 J	12000 J	12000 J	8300 J	6300 J	11000 J	14000 J	2500 J	22000 J
KKMB-SD-013	SD-013-9.5/10.5	5/14/2015	9.5-10.5	0.016 U	0.001 U	**162**	**12**	280	134000	2900 J	2700 J	2500 J	7300 J	11000 J	8800 J	8800 J	6200 J	4800 J	7500 J	12000 J	2000 J	23000 J
KKMB-SD-013	SD-013-10.5/11.5	5/14/2015	10.5-11.5	0.016 U	0.002 U	**123**	**12**	210	101000	1800 J	1100 J	2100 J	4300 J	9400 J	7600 J	7400 J	5400 J	4200 J	7700 J	9800 J	1700 J	17000 J
KKMB-SD-013	SD-013-11.5/13.0	5/14/2015	11.5-13.0	0.016 U	0.001 U	**192**	**11**	297	171000	4700	5800	2800	9800	14000	11000	10000	7300	5700	9700	14000	2100	26000
			<u>Surface</u>																			
			Min	0.075	0.03	1.0	0.3	1.9	23700	17	16	11	37	55	63	74	55	52	58	74	13	140
			Max	1.28	0.23	108	17	182	97300	1800	1000	2100	4700	8800	7000	5800	4600	3500	7200	8800	1300	16000
			Average	0.67	0.13	18	3.6	35	54254	359	208	365	721	1700	1494	1558	902	907	1368	1771	313	3045
			Median	0.65	0.12	5.5	1.5	12	51000	68	49	69	130	600	560	710	310	420	620	690	100	1200
			Standard Deviation	0.60	0.10	31	5.0	55	17083	614	358	659	1361	2676	2124	1952	1302	1082	2139	2657	416	4720
			<u>Subsurface</u>																			
			Min	0.014 U	0.001 U	0.02	0.01	0.053	619	2.0 U	1.9 U	0.8	1.9 U	0.8	2.0 U	0.8	1	0.8	2.0 U	1.3	1.9 U	1.1
			Max	3.13	0.63	192	14	297	171000	4700	5800	3200	9800	14000	12000	12000	8300.0	6300	11000	14000	2500	26000
			Average	0.65	0.12	24	3.3	38	55526	390	278	355	796	1785	1524	1572	998	885	1356	1893	312	3399
			Median	0.77	0.07	10	1.8	14	53650	115	77	102	210	700	675	685	530	475	620	800	140	1350
			Standard Deviation	0.77	0.16	39	3.8	64	31850	731	744	632	1622	2931	2362	2351	1483	1257	2114	2972	492	5450

Notes:

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all Aroclors were nondetect, the value is one-half of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1one-half of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR Consensus-Based Sediment Quality Guidelines (CBSQG).

[3] Total PAH-37 calculated by summing the detected results and one-half of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-naphthalenes. 1-Methylnaphthalene and 2-methylnaphthalene were included in the sum in place of C1-naphthalenes.

[4] Per WDNR request non-normalized TOC values for total PCB and PAH-18 concentrations have been screened against Threshold Effect Concentration (TEC) and Probably Effect Concentration (PEC) values listed within the WDNR CBSQG, December 2003.

[5] "0.0-0.5" represents sample intervals below sediment surface (bss).

Bold values represent cases where the result is greater than the Wisconsin TEC.

Shading represents cases where the result is greater than the Wisconsin PEC.

<u>Summary Statistics:</u>

The minimum concentration for nondetects is reported as the lowest quantitation limit and qualified "U".

Summary statistics for PAHs calculated using one-half the quantitation limit for nondetected results (U).

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; J = Estimated;
U = Nondetect; UJ = Estimated nondetect

-- parameter not analyzed

Table 2. Analytical Results for Organics, TEC, and PEC Exceedances for KKMB Sampl

Kinnickinnic River Mooring Basin Site Characterization

Core Location	Sample Name	Date	Depth Interval[5]	Fluorene µg/kg	Indeno(1,2,3-Cd) Pyrene µg/kg	Naphthalene µg/kg	Phenanthrene µg/kg	Pyrene µg/kg	Moisture, percent %
			CAS No.	86-73-7	193-39-5	91-20-3	85-01-8	129-00-0	-
			Wisconsin TEC	77.4	200	176	204	195	-
			Wisconsin PEC	536	3200	561	1170	1520	-
KKMB-SD-001	SD-001-0.0/0.5	5/14/2015	0.0-0.5	32	140	140	130	180	49.5
KKMB-SD-002	SD-002-0.0/0.5	5/14/2015	0.0-0.5	2600 J	4400 J	9100 J	8500 J	11000 J	47.7
KKMB-SD-002	SD-002-0.5/1.5	5/14/2015	0.5-1.5	1600	3600	6700	5500	8400	46.6
KKMB-SD-002	SD-002-1.5/2.5	5/14/2015	1.5-2.5	610	1500	3800	2600	3400	47.9
KKMB-SD-002	SD-002-2.5/3.9	5/14/2015	2.5-3.9	1300	1700	6000	4700	4500	39.7
KKMB-SD-003	SD-003-0.0/0.5	5/14/2015	0.0-0.5	1600	3300	9900	5500	7000	45.2
KKMB-SD-003	SD-003-0.5/1.5	5/14/2015	0.5-1.5	230 J	670 J	790 J	750 J	1200 J	48.2
KKMB-SD-003	SD-003-1.5/2.5	5/14/2015	1.5-2.5	620	1200	3200	2300	2800	42.9
KKMB-SD-003	SD-003-2.5/3.5	5/14/2015	2.5-3.5	610	1100	2800	2200	2500	29
KKMB-SD-003	SD-003-3.5/4.5	5/14/2015	3.5-4.5	1200	2200	6200 J	4200	5000	36.1
KKMB-SD-003	SD-003-4.5/5.6	5/14/2015	4.5-5.6	1700	3500	7700 J	7400 J	12000 J	45.1
KKMB-SD-003	SD-003-5.6/5.9	5/14/2015	5.6-5.9	110	31	140	390	250	39.2
KKMB-SD-004	SD-004-0.0/0.5	5/13/2015	0.0-0.5	23 J	59 J	66 J	97 J	91 J	39.9
KKMB-SD-004	SD-004-0.5/1.5	5/13/2015	0.5-1.5	8 J	53 J	40 J	36 J	68 J	43.2
KKMB-SD-004	SD-004-1.5/2.3	5/13/2015	1.5-2.3	2.8 UJ	2 J	2.3 J	2.2 J	2.9 J	40.2
KKMB-SD-004	SD-004B-0.5/1.5	5/13/2015	0.5-1.5	1.2 J	5.4 J	2.7 J	5.3 J	8.9 J	41.2
KKMB-SD-004	SD-004B-1.5/3.8	5/13/2015	1.5-3.8	2.8 UJ	1.5 J	40 J	3.3 J	2.1 J	41.5
KKMB-SD-005	SD-005-0.0/0.5	5/13/2015	0.0-0.5	160	850	850	710	950	51.8
KKMB-SD-005	SD-005-0.5/1.5	5/13/2015	0.5-1.5	270	1100	1300	870	1700	52.1
KKMB-SD-005	SD-005-1.5/2.5	5/13/2015	1.5-2.5	210 J	620 J	750 J	650 J	990 J	50
KKMB-SD-005	SD-005-2.5/3.5	5/13/2015	2.5-3.5	17 J	80 J	83 J	80 J	120 J	36.4
KKMB-SD-005	SD-005-3.5/4.5	5/13/2015	3.5-4.5	12 J	38 J	41 J	42 J	69 J	19.2
KKMB-SD-005	SD-005-4.5/5.5	5/13/2015	4.5-5.5	8.1 J	29 J	38 J	32 J	42 J	27.7
KKMB-SD-005	SD-005-5.5/6.4	5/13/2015	5.5-6.4	14 J	37 J	82 J	56 J	50 J	58.3
KKMB-SD-006	SD-006-0.0/0.5	5/11/2015	0.0-0.5	760 J	2300 J	2000 J	2600 J	2600 J	50.1
KKMB-SD-006	SD-006-0.5/1.5	5/11/2015	0.5-1.5	130 J	340 J	410 J	490 J	610 J	47.5
KKMB-SD-006	SD-006-1.5/2.5	5/11/2015	1.5-2.5	160 J	1000	1000	910	1800	45.8
KKMB-SD-006	SD-006-2.5/3.5	5/11/2015	2.5-3.5	81	440	340	440	620	48.6
KKMB-SD-006	SD-006-3.5/4.5	5/11/2015	3.5-4.5	89	530	400	430	860	41.8
KKMB-SD-006	SD-006-4.5/5.5	5/11/2015	4.5-5.5	180	660	460	850	1400	44.6
KKMB-SD-006	SD-006-5.5/6.5	5/11/2015	5.5-6.5	190	270	420	620	820	34.5
KKMB-SD-006	SD-006-6.5/7.5	5/11/2015	6.5-7.5	51 J	110 J	140 J	330 J	150 J	27.1
KKMB-SD-006	SD-006-7.5/8.0	5/11/2015	7.5-8.0	20	22	38	89	29	19.6
KKMB-SD-007	SD-007-0.0/0.5	5/11/2015	0.0-0.5	39	280	120	190	340	57.2
KKMB-SD-007	SD-007-0.5/1.5	5/11/2015	0.5-1.5	24	220	87	130	260	56.8
KKMB-SD-007	SD-007-1.5/2.5	5/11/2015	1.5-2.5	56	320	160	320	480	49.7
KKMB-SD-007	SD-007-2.5/3.5	5/11/2015	2.5-3.5	77	500	300	400	630	44.3
KKMB-SD-007	SD-007-3.5/4.0	5/11/2015	3.5-4.0	130	570	370	790	1000	35.2
KKMB-SD-008	SD-008-0.0/0.5	5/11/2015	0.0-0.5	96	470	140	510	900	55.6
KKMB-SD-008	SD-008-0.5/1.5	5/11/2015	0.5-1.5	63	340	130	330	540	49.2
KKMB-SD-008	SD-008-1.5/2.5	5/11/2015	1.5-2.5	84	350	340	330	520	47
KKMB-SD-008	SD-008-2.5/3.5	5/11/2015	2.5-3.5	270 J	980 J	1500 J	1200 J	1400 J	43.7
KKMB-SD-008	SD-008-3.5/4.6	5/11/2015	3.5-4.6	60	470	410	370	720 J	44.3
KKMB-SD-008	SD-008-4.6/5.3	5/11/2015	4.6-5.3	0.9 J	1.7 J	2	3.1	4.6	13
KKMB-SD-009	SD-009-0.0/0.5	5/13/2015	0.0-0.5	210	1000	510	1100	1400	58
KKMB-SD-009	SD-009-0.5/1.5	5/13/2015	0.5-1.5	210	910	820	940	1400	55
KKMB-SD-009	SD-009-1.5/2.5	5/13/2015	1.5-2.5	180 J	560 J	1100 J	830 J	1100 J	53.7
KKMB-SD-009	SD-009-2.5/3.5	5/13/2015	2.5-3.5	210 J	710 J	1500 J	860 J	940 J	57.6
KKMB-SD-009	SD-009-3.5/4.5	5/13/2015	3.5-4.5	340	1100	1500	1300	1500	55.2
KKMB-SD-009	SD-009-4.5/5.5	5/13/2015	4.5-5.5	340	1400	1600	1100	1800	55.8
KKMB-SD-009	SD-009-5.5/6.5	5/13/2015	5.5-6.5	330 J	960 J	1700 J	1400 J	1900 J	40.4
KKMB-SD-009	SD-009-6.5/7.5	5/13/2015	6.5-7.5	240 J	600 J	1100 J	830 J	1100 J	48.2
KKMB-SD-009	SD-009-7.5/8.5	5/13/2015	7.5-8.5	15 J	43 J	67 J	59 J	94 J	20.9
KKMB-SD-009	SD-009-8.5/9.5	5/13/2015	8.5-9.5	9.9 U	4.2 J	6.6 J	6.9 J	9.8 J	16.9
KKMB-SD-009	SD-009-9.5/10.5	5/13/2015	9.5-10.5	2 U	2 U	2 U	1 J	2.2 J	16.3
KKMB-SD-009	SD-009-10.5/11.8	5/13/2015	10.5-11.8	2 U	2 U	0.8 J	1 J	2.2 J	16.6
KKMB-SD-010	SD-010-0.0/0.5	5/14/2015	0.0-0.5	33 J	200	160	150	280	54.9
KKMB-SD-010	SD-010-0.5/1.5	5/14/2015	0.5-1.5	45	230	200	190	390	53.2
KKMB-SD-010	SD-010-1.5/2.5	5/14/2015	1.5-2.5	46	180	200	200	370	50.9
KKMB-SD-010	SD-010-2.5/3.5	5/14/2015	2.5-3.5	37	170	160	160	290	48.7
KKMB-SD-010	SD-010-3.5/5.0	5/14/2015	3.5-5.0	210 J	930	900	980	1700	46.4
KKMB-SD-011	SD-011-0.0/0.5	5/13/2015	0.0-0.5	68 J	370 J	440 J	330 J	520 J	55.4
KKMB-SD-011	SD-011-0.5/1.5	5/13/2015	0.5-1.5	88 J	400 J	580 J	400 J	580 J	51.7
KKMB-SD-011	SD-011-1.5/2.5	5/13/2015	1.5-2.5	280 J	1100 J	1700 J	1200 J	1700 J	50.7
KKMB-SD-011	SD-011-2.5/3.1	5/13/2015	2.5-3.1	100 J	430 J	500 J	470 J	740 J	49.7
KKMB-SD-011	SD-011-3.1/4.0	5/13/2015	3.1-4.0	9.1 J	10 J	20 J	26 J	29 J	38.2
KKMB-SD-012	SD-012-0.0/0.5	5/14/2015	0.0-0.5	67	310	270	400	570	53.4
KKMB-SD-012	SD-012-0.5/1.5	5/14/2015	0.5-1.5	62	340	180	300	530	50.3
KKMB-SD-012	SD-012-1.5/2.5	5/14/2015	1.5-2.5	86	580	380	450	830	46

Table 2. Analytical Results for Organics, TEC, and PEC Exceedances for KKMB Sampl
Kinnickinnic River Mooring Basin Site Characterization

Core Location	Sample Name	Date	Depth Interval[5]	Fluorene µg/kg	Indeno(1,2,3-Cd) Pyrene µg/kg	Naphthalene µg/kg	Phenanthrene µg/kg	Pyrene µg/kg	Moisture, percent %
			CAS No.	86-73-7	193-39-5	91-20-3	85-01-8	129-00-0	-
			Wisconsin TEC	77.4	200	176	204	195	-
			Wisconsin PEC	536	3200	561	1170	1520	-
KKMB-SD-012	SD-012-2.5/3.5	5/14/2015	2.5-3.5	130 J	730 J	540 J	640 J	1100 J	47.3
KKMB-SD-012	SD-012-3.5/4.5	5/14/2015	3.5-4.5	200	670	610	690	960	52.5
KKMB-SD-012	SD-012-4.5/5.5	5/14/2015	4.5-5.5	890	1300	5200	2600	3600	50.2
KKMB-SD-012	SD-012-5.5/6.5	5/14/2015	5.5-6.5	550	1100	4200	1500	2400	49.3
KKMB-SD-012	SD-012-6.5/7.5	5/14/2015	6.5-7.5	1000 J	3300 J	5300 J	4200 J	7000	49.4
KKMB-SD-012	SD-012-7.5/8.5	5/14/2015	7.5-8.5	1800	3900	8200 J	6000	8500 J	49
KKMB-SD-012	SD-012-8.5/9.5	5/14/2015	8.5-9.5	820	2000	3800	2600	3900	46.5
KKMB-SD-012	SD-012-9.5/10.5	5/14/2015	9.5-10.5	740 J	1200 J	4200 J	2200 J	3500 J	47.2
KKMB-SD-012	SD-012-10.5/12.2	5/14/2015	10.5-12.2	250	740	1500	940	1700	37.2
KKMB-SD-013	SD-013-0.0/0.5	5/14/2015	0.0-0.5	110	690	500	570	880 J	53.2
KKMB-SD-013	SD-013-0.5/1.5	5/14/2015	0.5-1.5	92	560	420	510	750 J	49.8
KKMB-SD-013	SD-013-1.5/2.5	5/14/2015	1.5-2.5	83	430	290	410	530 J	46.8
KKMB-SD-013	SD-013-2.5/3.5	5/14/2015	2.5-3.5	98 J	540 J	420 J	400 J	640 J	46.6
KKMB-SD-013	SD-013-3.5/4.5	5/14/2015	3.5-4.5	59 J	380 J	290 J	350 J	610 J	48.7
KKMB-SD-013	SD-013-4.5/5.5	5/14/2015	4.5-5.5	100	520	320	590	670	48.6
KKMB-SD-013	SD-013-5.5/6.5	5/14/2015	5.5-6.5	130 J	680 J	600 J	730 J	950 J	46.5
KKMB-SD-013	SD-013-6.5/7.5	5/14/2015	6.5-7.5	690	1300	3700	2200	2100	45.9
KKMB-SD-013	SD-013-7.5/8.5	5/14/2015	7.5-8.5	2400 J	3400 J	12000 J	6500 J	6000 J	46.7
KKMB-SD-013	SD-013-8.5/9.5	5/14/2015	8.5-9.5	4000 J	8300 J	27000 J	12000 J	16000 J	46
KKMB-SD-013	SD-013-9.5/10.5	5/14/2015	9.5-10.5	5500 J	5900 J	19000 J	16000 J	16000 J	45.1
KKMB-SD-013	SD-013-10.5/11.5	5/14/2015	10.5-11.5	3000 J	5200 J	14000 J	10000 J	11000 J	44.7
KKMB-SD-013	SD-013-11.5/13.0	5/14/2015	11.5-13.0	7800	7000	15000	22000	17000	46.1
			Surface						
			Min	23	59	66	97	91	40
			Max	2600	4400	9900	8500	11000	58
			Average	446	1105	1861	1599	2055	52
			Median	96	470	440	510	880	53
			Standard Deviation	786	1368	3432	2561	3255	5
			Subsurface						
			Min	0.9	2.0 U	0.8	1.0	2.1	13
			Max	7800	8300	27000	22000	17000	58
			Average	556	1082	2398	1854	2267	43
			Median	130	565	480	630	900	47
			Standard Deviation	1226	1581	4605	3605	3714	10

Notes:

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all Aroclors were nondetect, the value is one-half of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1one-half of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR Consensus-Based Sediment Quality Guidelines (CBSQG).

[3] Total PAH-37 calculated by summing the detected results and one-half of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-naphthalenes. 1-Methylnaphthalene and 2-methylnaphthalene were included in the sum in place of C1-naphthalenes.

[4] Per WDNR request non-normalized TOC values for total PCB and PAH-18 concentrations have been screened against Threshold Effect Concentration (TEC) and Probably Effect Concentration (PEC) values listed within the WDNR CBSQG, December 2003.

[5] "0.0-0.5" represents sample intervals below sediment surface (bss).

Bold values represent cases where the result is greater than the Wisconsin TEC.

Shading represents cases where the result is greater than the Wisconsin PEC.

Summary Statistics:

The minimum concentration for nondetects is reported as the lowest quantitation limit and qualified "U".

Summary statistics for PAHs calculated using one-half the quantitation limit for nondetected results (U).

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; J = Estimated;
U = Nondetect; UJ = Estimated nondetect

-- parameter not analyzed

Table 3. Analytical Results for Inorganics, TEC, and PEC Exceedances for KKMB Samples

Kinnickinnic River Mooring Basin Site Characterization

Core Location	Sample Name	Date	Depth Interval[2]	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Nickel mg/kg	Zinc mg/kg
			CAS No.	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-97-6	7440-02-0	7440-66-6
			Wisconsin TEC[1]	9.8	0.99	43	32	36	0.18	23	120
			Wisconsin PEC[1]	33	5	110	150	130	1.1	49	460
KKMB-SD-001	SD-001-0.0/0.5	5/14/2015	0.0-0.5	7.41 J	**1.04** J	37.2	28.6	29.8	0.148 J	15.3	**134**
KKMB-SD-002	SD-002-0.0/0.5	5/14/2015	0.0-0.5	**47.7**	**9.89**	**713**	**182**	**383**	**2.97**	**35.9**	**902**
KKMB-SD-002	SD-002-0.5/1.5	5/14/2015	0.5-1.5	**29.3**	**4.14**	**484**	**130**	**269**	**1.93**	**34.4**	**662**
KKMB-SD-002	SD-002-1.5/2.5	5/14/2015	1.5-2.5	**24.8**	**4.86**	**537**	**154**	**318**	**2.43**	**26.5**	**796**
KKMB-SD-002	SD-002-2.5/3.9	5/14/2015	2.5-3.9	**15.5**	**2.95**	**682**	**97.6**	**164**	**1.98**	21.9	**551**
KKMB-SD-003	SD-003-0.0/0.5	5/14/2015	0.0-0.5	**29.9**	**8.23**	**669**	**136**	**770**	**2.34**	**28.8**	**827**
KKMB-SD-003	SD-003-0.5/1.5	5/14/2015	0.5-1.5	**33.6**	**5.63**	**649**	**136**	**274**	**2.39**	**29.4**	**679**
KKMB-SD-003	SD-003-1.5/2.5	5/14/2015	1.5-2.5	**17.8**	**2.71**	**412**	**94.6**	**185**	**1.11**	22.6	**476**
KKMB-SD-003	SD-003-2.5/3.5	5/14/2015	2.5-3.5	7.39	0.809 J	**198**	**33.1**	**54.9**	**0.619**	10.5	**165**
KKMB-SD-003	SD-003-3.5/4.5	5/14/2015	3.5-4.5	**9.84**	**1.08** J	**288**	**48.2**	**72**	**0.778**	14.7	**219**
KKMB-SD-003	SD-003-4.5/5.6	5/14/2015	4.5-5.6	**22.5**	**2.76**	**1340**	**140**	**240**	**3.53**	**29.2**	**685**
KKMB-SD-003	SD-003-5.6/5.9	5/14/2015	5.6-5.9	5.64 J	0.523 J	27.6	17.4	16.7	**0.313** U	17.6	63.6
KKMB-SD-004	SD-004-0.0/0.5	5/13/2015	0.0-0.5	**10.8**	**1.24** J	**53.4**	**44.6**	**51.5**	0.121 J	22	**166**
KKMB-SD-004	SD-004-0.5/1.5	5/13/2015	0.5-1.5	7.71	0.467 J	28.2	22.5	15.1	0.151 J	19.2	82.3
KKMB-SD-004	SD-004-1.5/2.3	5/13/2015	1.5-2.3	5.6 J	0.339 J	22	18.7	7.97	**0.312** U	17.4	61.8
KKMB-SD-004	SD-004B-0.5/1.5	5/13/2015	0.5-1.5	7.1	0.337 J	22.5	18.9	8.61	0.0212 J	17.5	64.5
KKMB-SD-004	SD-004B-1.5/3.8	5/13/2015	1.5-3.8	5.95 J	0.382 J	21	18.4	6.82	0.0185 J	16.8	63.5
KKMB-SD-005	SD-005-0.0/0.5	5/13/2015	0.0-0.5	**26.6**	**15.4**	**262**	**119**	**270**	**0.71**	**33.1**	**830**
KKMB-SD-005	SD-005-0.5/1.5	5/13/2015	0.5-1.5	**34.1**	**13**	**309**	**127**	**586**	**1.4**	**36.6**	**787**
KKMB-SD-005	SD-005-1.5/2.5	5/13/2015	1.5-2.5	**20.5**	**6.67**	**220**	**78.8**	**162**	**0.773**	**26.5**	**511**
KKMB-SD-005	SD-005-2.5/3.5	5/13/2015	2.5-3.5	8.46	**2.39**	**68**	29.6	**58.4**	**0.186** J	11.5	**202**
KKMB-SD-005	SD-005-3.5/4.5	5/13/2015	3.5-4.5	2.5 J	0.599 J	19.9	9.35	16.1	0.0416 J	4.77	55.4
KKMB-SD-005	SD-005-4.5/5.5	5/13/2015	4.5-5.5	1.83 J	0.194 J	9.54	6.54	4.84	0.0203 J	5.42	38.2
KKMB-SD-005	SD-005-5.5/6.4	5/13/2015	5.5-6.4	5.8 J	0.567 J	**55.5** J	21.5	20.2 J	0.0701 J	12.9	118 J
KKMB-SD-006	SD-006-0.0/0.5	5/11/2015	0.0-0.5	**17.7**	**8.24**	**165**	**91.9**	**207**	**0.611**	**27.5**	**507**
KKMB-SD-006	SD-006-0.5/1.5	5/11/2015	0.5-1.5	5.55 J	**1.25** J	**49.1**	28.3	**40.5**	0.0743 J	14.3	**122**
KKMB-SD-006	SD-006-1.5/2.5	5/11/2015	1.5-2.5	**24.4**	**13.2**	**187**	**91.6**	**167**	**1.11**	**25.5**	**676**
KKMB-SD-006	SD-006-2.5/3.5	5/11/2015	2.5-3.5	**21.9**	**9.43**	**323**	**118**	**363**	**0.927**	**63.6**	**643**
KKMB-SD-006	SD-006-3.5/4.5	5/11/2015	3.5-4.5	**15.6**	**7.01**	**176**	**87.5**	**187**	**0.527**	**26.4**	**493**
KKMB-SD-006	SD-006-4.5/5.5	5/11/2015	4.5-5.5	**36.4**	**12.1**	**276**	**139**	**409**	**1.35**	**36**	**1030**
KKMB-SD-006	SD-006-5.5/6.5	5/11/2015	5.5-6.5	**23.2**	**2.48**	**82**	**52.6**	**326**	**0.387**	18.1	**276**
KKMB-SD-006	SD-006-6.5/7.5	5/11/2015	6.5-7.5	4.19 J	0.349 J	15.6	20.7 J	**38.4** J	0.0755 J	9.58	57.8
KKMB-SD-006	SD-006-7.5/8.0	5/11/2015	7.5-8.0	5.85	0.225 J	15.3	17.3	10	0.0989 J	14.3	35.9
KKMB-SD-007	SD-007-0.0/0.5	5/11/2015	0.0-0.5	9.42	**4.17**	**154**	**84.3**	**176**	**0.334** J	**26**	**402**
KKMB-SD-007	SD-007-0.5/1.5	5/11/2015	0.5-1.5	**11**	**4.71**	**181**	**108**	**183**	**0.502**	**29.5**	**493**
KKMB-SD-007	SD-007-1.5/2.5	5/11/2015	1.5-2.5	**13.2**	**6.54**	**233**	**103**	**297**	**0.595**	**36.9**	**506**
KKMB-SD-007	SD-007-2.5/3.5	5/11/2015	2.5-3.5	**11.7**	**5.39**	**207**	**98.7**	**246**	**0.486**	**30.3**	**498**
KKMB-SD-007	SD-007-3.5/4.0	5/11/2015	3.5-4.0	**13**	**5.43**	**198**	**183**	**249**	**0.443**	**25**	**441**
KKMB-SD-008	SD-008-0.0/0.5	5/11/2015	0.0-0.5	**21.9**	**11.5**	**383**	**150**	**503**	**1.11**	**66.9**	**788**
KKMB-SD-008	SD-008-0.5/1.5	5/11/2015	0.5-1.5	**21.5**	**9.75**	**298**	**126**	**451**	**0.913**	**44.7**	**667**
KKMB-SD-008	SD-008-1.5/2.5	5/11/2015	1.5-2.5	**13.9**	**6.05**	**182**	**76.2**	**187**	**0.689**	**28.1**	**405**
KKMB-SD-008	SD-008-2.5/3.5	5/11/2015	2.5-3.5	**15.2**	**1.21** J	**216**	**56.5**	**82.4**	**0.794**	21	**265**
KKMB-SD-008	SD-008-3.5/4.6	5/11/2015	3.5-4.6	**11.7**	**1.38** J	**351**	**56.4**	**91.8**	**1.02**	20.1	**295**
KKMB-SD-008	SD-008-4.6/5.3	5/11/2015	4.6-5.3	4.28 J	0.211 J	14	15.7	11.1	**0.215** U	13.4	56.5
KKMB-SD-009	SD-009-0.0/0.5	5/13/2015	0.0-0.5	**20.2**	**13.2**	**427**	**143**	**528**	**0.979**	**49.9**	**893**
KKMB-SD-009	SD-009-0.5/1.5	5/13/2015	0.5-1.5	**21.9**	**10.5**	**315**	**130**	**388**	**1.03**	**43.1**	**708**
KKMB-SD-009	SD-009-1.5/2.5	5/13/2015	1.5-2.5	**26**	**12.1**	**296**	**142**	**480**	**0.968**	**41.6**	**817**
KKMB-SD-009	SD-009-2.5/3.5	5/13/2015	2.5-3.5	**29.3**	**12.6**	**316**	**147**	**532**	**1.35**	**45.6**	**865**
KKMB-SD-009	SD-009-3.5/4.5	5/13/2015	3.5-4.5	**29.5**	**11.6**	**312**	**147**	**582**	**1.28**	**46.1**	**933**
KKMB-SD-009	SD-009-4.5/5.5	5/13/2015	4.5-5.5	**54.6**	**21.7**	**415**	**220**	**465**	**2.17**	**51.9**	**1390**
KKMB-SD-009	SD-009-5.5/6.5	5/13/2015	5.5-6.5	**24.6**	**9.44**	**188**	**92.2**	**178**	**0.864**	**25.1**	**629**
KKMB-SD-009	SD-009-6.5/7.5	5/13/2015	6.5-7.5	**25**	**8.96**	**246**	**98**	**220**	**1.23**	**26.7**	**586**
KKMB-SD-009	SD-009-7.5/8.5	5/13/2015	7.5-8.5	2.07 J	0.445 J	18.5	13.1	12.6	0.0314 J	7.75	73.7
KKMB-SD-009	SD-009-8.5/9.5	5/13/2015	8.5-9.5	4.72 U	0.215 J	7.13	10.3	5.82	**0.233** U	6.76	53.2
KKMB-SD-009	SD-009-9.5/10.5	5/13/2015	9.5-10.5	1.31 J	0.179 J	6.04	9.48	4.84	**0.225** U	6.09	49.8
KKMB-SD-009	SD-009-10.5/11.8	5/13/2015	10.5-11.8	2.99 J	0.163 J	6.32	9.55	4.91	**0.225** U	6.65	49.9
KKMB-SD-010	SD-010-0.0/0.5	5/14/2015	0.0-0.5	**11.5**	**4.42**	**169**	**97.4**	**209**	**0.536**	**26.2**	**442**
KKMB-SD-010	SD-010-0.5/1.5	5/14/2015	0.5-1.5	**15.6**	**6.82**	**351**	**124**	**280**	**0.619**	**37.7**	**654**
KKMB-SD-010	SD-010-1.5/2.5	5/14/2015	1.5-2.5	**18.3**	**7.34**	**412**	**123**	**297**	**0.78**	**34.9**	**646**
KKMB-SD-010	SD-010-2.5/3.5	5/14/2015	2.5-3.5	**16.3**	**7.34**	**433**	**122**	**344**	**0.757**	**37.9**	**670**
KKMB-SD-010	SD-010-3.5/5.0	5/14/2015	3.5-5.0	**20.4**	**10.1**	**386**	**123** J	**400**	**0.862**	**39.1**	**729**
KKMB-SD-011	SD-011-0.0/0.5	5/13/2015	0.0-0.5	**14.5**	**4.02**	**146**	**92.5**	**152**	**0.499**	**26.3**	**429**
KKMB-SD-011	SD-011-0.5/1.5	5/13/2015	0.5-1.5	**13.8**	**4.24**	**158**	**89.5**	**164**	**0.495**	**26.3**	**432**
KKMB-SD-011	SD-011-1.5/2.5	5/13/2015	1.5-2.5	**18.2**	**6.82**	**370**	**119**	**295**	**0.577**	**34.4**	**641**

Table 3. Analytical Results for Inorganics, TEC, and PEC Exceedances for KKMB Samples

Kinnickinnic River Mooring Basin Site Characterization

Core Location	Sample Name	Date	Depth Interval[2]	Arsenic mg/kg	Cadmium mg/kg	Chromium mg/kg	Copper mg/kg	Lead mg/kg	Mercury mg/kg	Nickel mg/kg	Zinc mg/kg
			CAS No.	7440-38-2	7440-43-9	7440-47-3	7440-50-8	7439-92-1	7439-97-6	7440-02-0	7440-66-6
			Wisconsin TEC[1]	9.8	0.99	43	32	36	0.18	23	120
			Wisconsin PEC[1]	33	5	110	150	130	1.1	49	460
KKMB-SD-011	SD-011-2.5/3.1	5/13/2015	2.5-3.1	**16.1**	**5.81**	**255**	**93.7**	**228**	**0.591**	**32.2**	**537**
KKMB-SD-011	SD-011-3.1/4.0	5/13/2015	3.1-4.0	6.44 J	0.426 J	29.2	20.4	11.6	0.022 J	21.7	69.4
KKMB-SD-012	SD-012-0.0/0.5	5/14/2015	0.0-0.5	**11.8**	**3.49**	**122**	**83.6**	**159**	**0.411** J	**28.8**	**445**
KKMB-SD-012	SD-012-0.5/1.5	5/14/2015	0.5-1.5	**12.3**	**4.01**	**144**	**89.4**	**175**	**0.472**	**27.6**	**469**
KKMB-SD-012	SD-012-1.5/2.5	5/14/2015	1.5-2.5	**13.7**	**4.99**	**186**	**99.7**	**211**	**1.06**	**30.7**	**538**
KKMB-SD-012	SD-012-2.5/3.5	5/14/2015	2.5-3.5	**15.9**	**5.09**	**211**	**108**	**220**	**0.516**	**34.3**	**594**
KKMB-SD-012	SD-012-3.5/4.5	5/14/2015	3.5-4.5	**27**	**11.6**	**347**	**129**	**383**	**1.33**	**45.1**	**757**
KKMB-SD-012	SD-012-4.5/5.5	5/14/2015	4.5-5.5	**27.8**	**11.7**	**287**	**131** J	**393**	**1.47**	**42.9**	**802**
KKMB-SD-012	SD-012-5.5/6.5	5/14/2015	5.5-6.5	**30.1**	**11.6**	**316**	**129**	**372**	**1.5**	**41.7**	**806**
KKMB-SD-012	SD-012-6.5/7.5	5/14/2015	6.5-7.5	**47.9**	**34.9**	**370**	**153**	**351**	**2.28**	**39.3**	**1450**
KKMB-SD-012	SD-012-7.5/8.5	5/14/2015	7.5-8.5	**46.8**	**18.3**	**303**	**135**	**376**	**2.09**	**41.4**	**1060**
KKMB-SD-012	SD-012-8.5/9.5	5/14/2015	8.5-9.5	**38.6**	**9.21**	**354**	**111**	**296**	**2.11**	**35.8**	**750**
KKMB-SD-012	SD-012-9.5/10.5	5/14/2015	9.5-10.5	**37.4**	**7.05**	**387**	**110**	**347**	**2.41**	**29.4**	**720**
KKMB-SD-012	SD-012-10.5/12.2	5/14/2015	10.5-12.2	9.62	0.825 J	**152**	31.4	**64.6**	**0.519**	21.1	**221**
KKMB-SD-013	SD-013-0.0/0.5	5/14/2015	0.0-0.5	**15.3**	**5.36**	**214**	**112**	**205**	**0.565**	**29.4**	**524**
KKMB-SD-013	SD-013-0.5/1.5	5/14/2015	0.5-1.5	**15.8**	**5.4**	**232**	**118**	**217**	**0.687**	**30.7**	**544**
KKMB-SD-013	SD-013-1.5/2.5	5/14/2015	1.5-2.5	**15.2**	**5.58**	**225**	**121**	**224**	**0.465**	**31.5**	**565**
KKMB-SD-013	SD-013-2.5/3.5	5/14/2015	2.5-3.5	**15**	**5.52**	**222**	**115**	**224**	**0.535**	**30**	**551**
KKMB-SD-013	SD-013-3.5/4.5	5/14/2015	3.5-4.5	**15.9**	**6.47**	**316**	**129**	**274**	**0.472** J	**34.2**	**651**
KKMB-SD-013	SD-013-4.5/5.5	5/14/2015	4.5-5.5	**14.6**	**5.89**	**325**	**121**	**262**	**0.535**	**31.8**	**606**
KKMB-SD-013	SD-013-5.5/6.5	5/14/2015	5.5-6.5	**19.3**	**7.38**	**398**	**130**	**312**	**0.654**	**36.6**	**682**
KKMB-SD-013	SD-013-6.5/7.5	5/14/2015	6.5-7.5	**55.6**	**37.8**	**334**	**227**	**336**	**1.19**	**39.7**	**1630**
KKMB-SD-013	SD-013-7.5/8.5	5/14/2015	7.5-8.5	**38.8**	**16.5**	**309**	**169**	**352**	**1.77**	**40.8**	**1000**
KKMB-SD-013	SD-013-8.5/9.5	5/14/2015	8.5-9.5	**49.3**	**29.9**	**388**	**191**	**404**	**2.25**	**35.6**	**1430**
KKMB-SD-013	SD-013-9.5/10.5	5/14/2015	9.5-10.5	**34.1**	**10.1**	**278**	**126**	**297**	**1.66**	**27.5**	**646**
KKMB-SD-013	SD-013-10.5/11.5	5/14/2015	10.5-11.5	**33.1**	**9.34**	**380**	**126**	**300**	**1.86**	**32.8**	**713**
KKMB-SD-013	SD-013-11.5/13.0	5/14/2015	11.5-13.0	**39.8**	**16.9**	**312**	**148**	**340**	**1.74**	**37.5**	**936**
			Surface								
			Min	5.6	0.34	22	17	8.0	0.312 U	10.5	62
			Max	47.7	9.89	1340	182	770	3.53	35.9	902
			Average	17.7	2.94	385	81	179	1.30	22.7	408
			Median	13.2	1.98	350	71	118	0.94	22.0	348
			Standard Deviation	12.5	2.93	373	58	201	1.19	7.4	316
			Subsurface								
			Min	4.7 U	0.16	6.04	6.5	4.8	0.215 U	4.8	36
			Max	55.6	38	433	227	586	2.41	66.9	1630
			Average	19.4	7.70	224	99	241	0.81	30.1	565
			Median	15.9	6.26	224	108	224	0.64	30.4	548
			Standard Deviation	12.5	7.14	125	50	151	0.61	12.4	339

Notes:

[1] Threshold Effect Concentration (TEC) and Probably Effect Concentration (PEC), Wisconsin Department of Natural Resources (WDNR) Consensus-Based Sediment Quality Guidelines (CBSQG), December 2003.

[2] "0.0-0.5" represents sample intervals below sediment surface (bss).

Bold values represent cases where the result is greater than the Wisconsin TEC.

Shading represents cases where the result is greater than the Wisconsin PEC.

Summary Statistics:

The minimum concentration for non-detects is reported as the lowest quantitation limit and qualified "U".

Summary statistics calculated using 1/2 the quantitation limit for non-detected results (U).

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; J = Estimated; U = Nondetect; UJ = Estimated nondetect

Table 4. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals

Kinnickinnic River Mooring Basin Site Characterization

	Units	Sediment Benchmarks[a]		Location ID:	KKMB-SD-001	KKMB-SD-002	KKMB-SD-002	KKMB-SD-002	KKMB-SD-002	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-004	KKMB-SD-004	KKMB-SD-004	KKMB-SD-004
				Sample ID:	SD-001-0.0/0.5	SD-002-0.0/0.5	SD-002-0.5/1.5	SD-002-1.5/2.5	SD-002-2.5/3.9	SD-003-0.0/0.5	SD-003-0.5/1.5	SD-003-1.5/2.5	SD-003-2.5/3.5	SD-003-3.5/4.5	SD-003-4.5/5.6	SD-003-5.6/5.9	SD-004-0.0/0.5	SD-004-0.5/1.5	SD-004-1.5/2.3	SD-004B-0.5/1.5
				Date:	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015
AVS/SEM																				
Acid Volatile Sulfide	µmol/g	--	--		4 U	9.5	15.8	9	8	21.8	50.8	25.3	5	19	24.9	3.3 U	2.8 J	3.5 UJ	3.3 U	3.4 U
Cadmium	µmol/g	--	--		0.0215 U	0.0384	0.0345	0.0274	0.0151	0.0499	0.0602	0.0131	0.00795 J	0.00675	0.0138	0.018 U	0.0027 J	0.00248 J	0.00246 J	0.00214 J
Copper	µmol/g	--	--		0.146	0.744	0.468	0.435	0.586	0.53	0.353	0.321	0.241	0.281	0.602	0.0517 J	0.128	0.148	0.146	0.148
Lead	µmol/g	--	--		0.0373	1.05	1.12	1.13	0.649	1.16	1.18	0.557	0.367	0.382	0.815	0.0388	0.149	0.0437	0.0404 J	0.0353
Mercury	µmol/g	--	--		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	--	--		0.0954	0.2	0.223	0.143	0.237	0.432	0.209	0.172	0.088	0.257	0.186	0.0938	0.135	0.0846	0.0789 J	0.232
Silver	µmol/g	--	--		0.0224 U	0.00446 U	0.00435 U	0.00428 U	0.0187 U	0.00413 U	0.00429 U	0.00389 U	0.0156 U	0.0176 U	0.00402 U	0.0188 U	0.0194 U	0.00181 J	0.002 J	0.00168 J
Zinc	µmol/g	--	--		0.553	6.94	7.72	7.53	5.41	8.31	8.85	4.09	3.02	3.43	7.68	0.452	0.702	0.494	0.473	0.442
Wet Chemistry																				
Total Organic Carbon	mg/kg	--	--		70500	97300	78100	73100	53900	46700	74000	57600	19900	45500	67600	23200	23700	32000	26000	30000
Moisture, percent	%	--	--		49.5	47.7	46.6	47.9	39.7	45.2	48.2	42.9	29	36.1	45.1	39.2	39.9	43.2	40.2	41.2
Bioavailability of Metals																				
∑SEM/AVS Ratio	-	1.0[b]	-		0.21	0.94	0.61	1.03	0.86	0.48	0.21	0.20	0.75	0.23	0.37	0.20	0.40	0.22	0.22	0.25
(∑SEM-AVS)/f_{OC}	µmole/g_{oc}	130[c]	3,000[d]		-44.63	-5.40	-79.80	3.66	-20.29	-242.31	-542.51	-349.74	-63.73	-321.64	-230.79	-114.02	-70.62	-85.20	-98.39	-84.66

Notes:

∑SEM was calculated by summing the molar concentrations of silver divided by 2, cadmium, copper, lead, nickel, and zinc.

The AVS/SEM results for mercury were rejected due to QC deficiencies and are not presented in this table.

[a] EPA Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver, and Zinc), EPA-600-R-02-011, January 2005.

[b] An SEM/AVS ratio of ≤1.0 indicates an excess of sulfide and probable nontoxic sediments. An SEM/AVS ratio of >1.0 indicates an excess of metal and potentially toxic sediments.

[c] Sediment in which the organic carbon-normalized excess SEM is between 130 and 3,000 µmoles/goc may have adverse biological effects.

[d] Sediment in which the organic carbon-normalized excess SEM is greater than 3,000 µmoles/goc, adverse biological effects may be expected.

Shading indicates an SEM/AVS ratio greater than 1.0.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; f_{oc} = fraction of organic carbon; J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

Table 4. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals

Kinnickinnic River Mooring Basin Site Characterization

	Units	Sediment Benchmarks[a]		Location ID:	KKMB-SD-004	KKMB-SD-005	KKMB-SD-005	KKMB-SD-005	KKMB-SD-005	KKMB-SD-005	KKMB-SD-005	KKMB-SD-005
				Sample ID:	SD-004B-1.5/3.8	SD-005-0.0/0.5	SD-005-0.5/1.5	SD-005-1.5/2.5	SD-005-2.5/3.5	SD-005-3.5/4.5	SD-005-4.5/5.5	SD-005-5.5/6.4
				Date:	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015
AVS/SEM												
Acid Volatile Sulfide	µmol/g	--	--		3.4 U	12.7	30.4	23.7	4.8	2.5 U	2.8 U	4.8 UJ
Cadmium	µmol/g	--	--		0.00231 J	0.047	0.0397	0.106	0.0274	0.00267 U	0.00308 U	0.00141 J
Copper	µmol/g	--	--		0.122	0.917	0.903	0.505	0.478	0.0331	0.0741	0.134
Lead	µmol/g	--	--		0.0295 J	1.03	1.68	0.976	0.358	0.0103	0.0104	0.0201 J
Mercury	µmol/g	--	--		R	R	R	R	R	R	R	R
Nickel	µmol/g	--	--		0.126	0.496	0.272	0.254	0.253	0.0893	0.145	0.063
Silver	µmol/g	--	--		0.00172 J	0.00466 U	0.0586	0.0046 U	0.0177 U	0.00278 U	0.00321 U	0.00545 UJ
Zinc	µmol/g	--	--		0.455	6.18	6.88	9.08	3.86	0.138	0.153	0.377 J
Wet Chemistry												
Total Organic Carbon	mg/kg	--	--		32100	46100	71000	43100	25900	619	19700	62800
Moisture, percent	%	--	--		41.5	51.8	52.1	50	36.4	19.2	27.7	58.3
Bioavailability of Metals												
∑SEM/AVS Ratio	-	1.0[b]	-		0.22	0.68	0.32	0.46	1.04	0.11	0.14	0.12
(∑SEM-AVS)/f_{OC}	µmole/g_{oc}	130[c]	3,000[d]		-83.00	-87.37	-289.67	-296.44	7.15	-3597.05	-122.56	-66.91

	Units	Sediment Benchmarks[a]		Location ID:	KKMB-SD-006	KKMB-SD-006	KKMB-SD-006	KKMB-SD-006	KKMB-SD-006	KKMB-SD-006	KKMB-SD-006	KKMB-SD-006
				Sample ID:	SD-006-0.0/0.5	SD-006-0.5/1.5	SD-006-1.5/2.5	SD-006-2.5/3.5	SD-006-3.5/4.5	SD-006-4.5/5.5	SD-006-5.5/6.5	SD-006-6.5/7.5
				Date:	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015
AVS/SEM												
Acid Volatile Sulfide	µmol/g	--	--		24.2	9.6	19.3	30.8	11.4	13.1	2.5 J	3.2 J
Cadmium	µmol/g	--	--		0.093	0.031	0.0288	0.0813	0.0444	0.0595	0.01	0.00243 J
Copper	µmol/g	--	--		0.734	0.534	0.532	1.05	0.834	1.01	0.336	0.229 J
Lead	µmol/g	--	--		0.786	0.305	0.616	0.988	1.71	1.22	0.681	0.115
Mercury	µmol/g	--	--		R	R	R	R	R	R	R	R
Nickel	µmol/g	--	--		0.262	0.168	0.196	0.3	0.183	0.243	0.102	0.375 J
Silver	µmol/g	--	--		0.00452 U	0.0217 U	0.00412 U	0.00431 U	0.00492	0.00405 U	0.0035 U	0.00305 UJ
Zinc	µmol/g	--	--		8.37	3.06	3.69	7.88	7.29	7.27	2.45	0.684 J-
Wet Chemistry												
Total Organic Carbon	mg/kg	--	--		48700	36400	54200	56100	50900	66700	66200	30100
Moisture, percent	%	--	--		50.1	47.5	45.8	48.6	41.8	44.6	34.5	27.1
Bioavailability of Metals												
∑SEM/AVS Ratio	-	1.0[b]	-		0.42	0.43	0.26	0.33	0.88	0.75	1.43	0.44
(∑SEM-AVS)/f_{OC}	µmole/g_{oc}	130[c]	3,000[d]		-286.50	-150.86	-262.64	-365.39	-26.25	-49.41	16.33	-59.57

Notes:

∑SEM was calculated by summing the molar concentrations of silver divided by 2, cadmium, copper, lead, nickel, and zinc.

The AVS/SEM results for mercury were rejected due to QC deficiencies and are not presented in this table.

[a] EPA Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver, and Zinc), EPA-600-R-02-011, January 2005.

[b] An SEM/AVS ratio of ≤1.0 indicates an excess of sulfide and probable nontoxic sediments. An SEM/AVS ratio of >1.0 indicates an excess of metal and potentially toxic sediments.

[c] Sediment in which the organic carbon-normalized excess SEM is between 130 and 3,000 µmoles/goc may have adverse biological effects.

[d] Sediment in which the organic carbon-normalized excess SEM is greater than 3,000 µmoles/goc, adverse biological effects may be expected.

Shading indicates an SEM/AVS ratio greater than 1.0.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; f_{oc} = fraction of organic carbon; J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

Table 4. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals

Kinnickinnic River Mooring Basin Site Characterization

	Units	Sediment Benchmarks[a]		Location ID:	KKMB-SD-006	KKMB-SD-007	KKMB-SD-007	KKMB-SD-007	KKMB-SD-007	KKMB-SD-007	KKMB-SD-008	KKMB-SD-008	KKMB-SD-008	KKMB-SD-008	KKMB-SD-008	KKMB-SD-008	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009
				Sample ID:	SD-006-7.5/8.0	SD-007-0.0/0.5	SD-007-0.5/1.5	SD-007-1.5/2.5	SD-007-2.5/3.5	SD-007-3.5/4.0	SD-008-0.0/0.5	SD-008-0.5/1.5	SD-008-1.5/2.5	SD-008-2.5/3.5	SD-008-3.5/4.6	SD-008-4.6/5.3	SD-009-0.0/0.5	SD-009-0.5/1.5	SD-009-1.5/2.5	SD-009-2.5/3.5
				Date:	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/11/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015
AVS/SEM																				
Acid Volatile Sulfide	µmol/g	--	--		2.5 U	9.7	8.2	3.1 J	6.6	12.9	38.3	22.9	32.6	7	51.4	2.3 U	17.3	46.2	34.9	51.5
Cadmium	µmol/g	--	--		0.0135 U	0.0214	0.0248	0.027	0.0214	0.0438	0.0723	0.0597	0.0201	0.00711	0.00981	0.0122 U	0.0902	0.0607	0.0868	0.077
Copper	µmol/g	--	--		0.135	0.522	0.691	0.595	0.562	1.14	0.598	0.999	0.899	0.627	0.909	0.135	0.643	0.406	0.499	0.502
Lead	µmol/g	--	--		0.128	0.505	0.579	0.594	0.504	0.872	1.74	1.1	0.662	0.348	0.527	0.0301	1.87	1.06	1.34	1.43
Mercury	µmol/g	--	--		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	--	--		0.0516 J	0.218	0.222	0.13	0.135	0.179	0.433	0.345	0.166	0.425	0.176	0.173	0.349	0.302	0.289	0.396
Silver	µmol/g	--	--		0.0141 U	0.00519 U	0.00525 U	0.00456 U	0.00413 U	0.0035 U	0.00177 J	0.00444 U	0.00437 U	0.00402 U	0.00412 U	0.0127 U	0.00537 U	0.00514 U	0.00495 U	0.00542 U
Zinc	µmol/g	--	--		0.558	3.98	4.51	4.22	3.24	5.65	8.66	6.25	5.78	3.52	4.87	0.486	9.94	6.18	8.73	9.79
Wet Chemistry																				
Total Organic Carbon	mg/kg	--	--		13300	55300	57400	49900	39000	36500	54100	59200	53400	52600	44900	3600	65500	49700	68600	72400
Moisture, percent	%	--	--		19.6	57.2	56.8	49.7	44.3	35.2	55.6	49.2	47	43.7	44.3	13	58	55	53.7	57.6
Bioavailability of Metals																				
∑SEM/AVS Ratio	-	1.0[b]	-		0.35	0.54	0.74	1.80	0.68	0.61	0.30	0.38	0.23	0.70	0.13	0.36	0.75	0.17	0.31	0.24
(∑SEM-AVS)/f_{OC}	µmole/g_{oc}	130[c]	3,000[d]		-121.32	-80.49	-37.81	49.46	-54.76	-137.35	-495.30	-238.92	-469.49	-39.37	-1000.14	-406.51	-67.25	-768.38	-349.17	-542.85

Notes:

∑SEM was calculated by summing the molar concentrations of silver divided by 2, cadmium, copper, lead, nickel, and zinc.

The AVS/SEM results for mercury were rejected due to QC deficiencies and are not presented in this table.

[a] EPA Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver, and Zinc), EPA-600-R-02-011, January 2005.

[b] An SEM/AVS ratio of ≤1.0 indicates an excess of sulfide and probable nontoxic sediments. An SEM/AVS ratio of >1.0 indicates an excess of metal and potentially toxic sediments.

[c] Sediment in which the organic carbon-normalized excess SEM is between 130 and 3,000 µmoles/goc may have adverse biological effects.

[d] Sediment in which the organic carbon-normalized excess SEM is greater than 3,000 µmoles/goc, adverse biological effects may be expected.

Shading indicates an SEM/AVS ratio greater than 1.0.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; f_{oc} = fraction of organic carbon; J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

Table 4. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals

Kinnickinnic River Mooring Basin Site Characterization

	Units	Sediment Benchmarks[a]		Location ID:	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009	KKMB-SD-009	KKMB-SD-010	KKMB-SD-010	KKMB-SD-010	KKMB-SD-010	KKMB-SD-010	KKMB-SD-011	KKMB-SD-011	KKMB-SD-011
				Sample ID:	SD-009-3.5/4.5	SD-009-4.5/5.5	SD-009-5.5/6.5	SD-009-6.5/7.5	SD-009-7.5/8.5	SD-009-8.5/9.5	SD-009-9.5/10.5	SD-009-10.5/11.8	SD-010-0.0/0.5	SD-010-0.5/1.5	SD-010-1.5/2.5	SD-010-2.5/3.5	SD-010-3.5/5.0	SD-011-0.0/0.5	SD-011-0.5/1.5	SD-011-1.5/2.5
				Date:	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/13/2015	5/13/2015	5/13/2015
AVS/SEM																				
Acid Volatile Sulfide	µmol/g	--	--		79.2	54.5	11.7	12.7	11.5	2.4 U	2.4 U	2.4 U	6.3	7.5	14.6	19.6	19.9 J-	5	5.4	8.7
Cadmium	µmol/g	--	--		0.0719	0.193	0.0431	0.0507	0.0353	0.0131 U	0.00097 J	0.0132 U	0.0251	0.0475	0.0405	0.044	0.0596	0.0265	0.0288	0.0381
Copper	µmol/g	--	--		0.472	0.451	0.371	0.574	0.163	0.0801	0.0789	0.0835	0.599	0.82	0.519	0.978	0.738	0.848	0.779	1.07
Lead	µmol/g	--	--		1.35	1.05	0.469	1.26	0.396	0.0247	0.0189	0.0245	0.563	0.96	0.889	1.23	1.31 J	0.548	0.643	0.789
Mercury	µmol/g	--	--		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	--	--		0.268	0.287	0.131	0.166	0.122	0.0566	0.0478	0.0828	0.284	0.194	0.214	0.444	0.397 J-	0.495	0.137	0.177
Silver	µmol/g	--	--		0.00505 U	0.00504 U	0.0188 U	0.00449 U	0.0142 U	0.0136 U	0.0137 U	0.0138 U	0.0049 U	0.00478 U	0.00469 U	0.00432 U	0.00415 UJ	0.003 J	0.00239 J	0.00438 J
Zinc	µmol/g	--	--		8.71	17	4.62	5.57	3.12	0.518	0.498	0.456	4.44	6.39	6.16	8.22	7.92	4.48	4.84	5.83
Wet Chemistry																				
Total Organic Carbon	mg/kg	--	--		56700	87600	65300	58900	6850	2160	2190	1740	48800	47800	46800	72300	60200	42900	45800	44400
Moisture, percent	%	--	--		55.2	55.8	40.4	48.2	20.9	16.9	16.3	16.6	54.9	53.2	50.9	48.7	46.4	55.4	51.7	50.7
Bioavailability of Metals																				
∑SEM/AVS Ratio	-	1.0[b]	-		0.14	0.35	0.48	0.60	0.33	0.29	0.27	0.28	0.94	1.12	0.54	0.56	0.52	1.28	1.19	0.91
$(\sum SEM-AVS)/f_{OC}$	µmole/g_{oc}	130[c]	3,000[d]		-1205.04	-405.44	-92.75	-86.20	-1117.75	-790.39	-798.44	-999.83	-7.92	19.12	-144.77	-120.08	-157.36	32.65	22.49	-17.83

Notes:

∑SEM was calculated by summing the molar concentrations of silver divided by 2, cadmium, copper, lead, nickel, and zinc.

The AVS/SEM results for mercury were rejected due to QC deficiencies and are not presented in this table.

[a] EPA Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver, and Zinc), EPA-600-R-02-011, January 2005.

[b] An SEM/AVS ratio of ≤1.0 indicates an excess of sulfide and probable nontoxic sediments. An SEM/AVS ratio of >1.0 indicates an excess of metal and potentially toxic sediments.

[c] Sediment in which the organic carbon-normalized excess SEM is between 130 and 3,000 µmoles/goc may have adverse biological effects.

[d] Sediment in which the organic carbon-normalized excess SEM is greater than 3,000 µmoles/goc, adverse biological effects may be expected.

Shading indicates an SEM/AVS ratio greater than 1.0.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; f_{oc} = fraction of organic carbon; J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

Table 4. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals

Kinnickinnic River Mooring Basin Site Characterization

	Units	Sediment Benchmarks[a]		Location ID:	KKMB-SD-011	KKMB-SD-011	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-012	KKMB-SD-013	KKMB-SD-013
				Sample ID:	SD-011-2.5/3.1	SD-011-3.1/4.0	SD-012-0.0/0.5	SD-012-0.5/1.5	SD-012-1.5/2.5	SD-012-2.5/3.5	SD-012-3.5/4.5	SD-012-4.5/5.5	SD-012-5.5/6.5	SD-012-6.5/7.5	SD-012-7.5/8.5	SD-012-8.5/9.5	SD-012-9.5/10.5	SD-012-10.5/12.2	SD-013-0.0/0.5	SD-013-0.5/1.5
				Date:	5/13/2015	5/13/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015
AVS/SEM																				
Acid Volatile Sulfide	µmol/g	--	--		7.7	3.2 U	4.2 J	3.8 J	1.3 J	5.6	10.2	27.8	31.3	24.3	36	15.4	13.5	1.9 J	6.5	3.9 J
Cadmium	µmol/g	--	--		0.0521	0.0179 U	0.0259	0.0265	0.0303	0.029	0.0604	0.0714 J	0.0802	0.2	0.236	0.0504	0.052	0.00674	0.0338	0.0292
Copper	µmol/g	--	--		1.08	0.093	0.653	0.639	0.674	0.555	0.507	0.588 J	0.418	0.401	0.492	0.491	0.247	0.263	0.629	0.687
Lead	µmol/g	--	--		1.06	0.0353	0.699	0.636	0.67	0.778	1.22	1.43	1.51	1.35	1.4	1.14	1.14	0.337	0.711	0.619
Mercury	µmol/g	--	--		R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	--	--		0.205	0.225	0.14	0.147	0.146	0.264	0.409	0.299 J	0.289	0.322	0.256	0.354	0.174	0.152	0.152	0.23
Silver	µmol/g	--	--		0.00333 J	0.0186 U	0.00482 U	0.00458 U	0.00424 U	0.0212 U	0.000978 J	0.00115 J	0.00174 J	0.00447 U	0.00435 U	0.00417 U	0.0043 U	0.0178 U	0.00487 U	0.00463 U
Zinc	µmol/g	--	--		7.24	0.32	4.56	5.01	5.05	5.26	6.47	8.08	9.18	21.3	17.3	7.05	8.12	2.64	5.23	4.67
Wet Chemistry																				
Total Organic Carbon	mg/kg	--	--		68700	16800	51000	53200	40500	42800	47800	94300	35100	121000	95500	81800	91600	26700	54700	54800
Moisture, percent	%	--	--		49.7	38.2	53.4	50.3	46	47.3	52.5	50.2	49.3	49.4	49	46.5	47.2	37.2	53.2	49.8
Bioavailability of Metals																				
∑SEM/AVS Ratio	-	1.0[b]	-		1.25	0.22	1.45	1.70	5.06	1.23	0.85	0.38	0.37	0.97	0.55	0.59	0.72	1.79	1.04	1.60
(∑SEM-AVS)/f_{OC}	µmole/g_{oc}	130[c]	3,000[d]		28.24	-149.31	36.87	50.01	130.18	30.29	-32.06	-183.78	-564.70	-5.99	-170.83	-77.17	-41.10	56.47	4.72	42.66

Notes:

∑SEM was calculated by summing the molar concentrations of silver divided by 2, cadmium, copper, lead, nickel, and zinc.

The AVS/SEM results for mercury were rejected due to QC deficiencies and are not presented in this table.

[a] EPA Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver, and Zinc), EPA-600-R-02-011, January 2005.

[b] An SEM/AVS ratio of ≤1.0 indicates an excess of sulfide and probable nontoxic sediments. An SEM/AVS ratio of >1.0 indicates an excess of metal and potentially toxic sediments.

[c] Sediment in which the organic carbon-normalized excess SEM is between 130 and 3,000 µmoles/goc may have adverse biological effects.

[d] Sediment in which the organic carbon-normalized excess SEM is greater than 3,000 µmoles/goc, adverse biological effects may be expected.

Shading indicates an SEM/AVS ratio greater than 1.0.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; f_{oc} = fraction of organic carbon; J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

Table 4. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals

Kinnickinnic River Mooring Basin Site Characterization

	Units	Sediment Benchmarks[a]		Location ID:	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013	KKMB-SD-013
				Sample ID:	SD-013-1.5/2.5	SD-013-2.5/3.5	SD-013-3.5/4.5	SD-013-4.5/5.5	SD-013-5.5/6.5	SD-013-6.5/7.5	SD-013-7.5/8.5	SD-013-8.5/9.5	SD-013-9.5/10.5	SD-013-10.5/11.5	SD-013-11.5/13.0
				Date:	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015
AVS/SEM															
Acid Volatile Sulfide	µmol/g	--	--		2.5 J	2.8 J	8.8	12.2	7.2	2.8 J	16.1	3.2 J	4.2	1.8 J	14.3
Cadmium	µmol/g	--	--		0.0329	0.0244	0.0327 J	0.0375	0.0336	0.0608	0.284	0.136	0.108	0.0474	0.0424
Copper	µmol/g	--	--		1.01	0.48	0.732 J	0.681	0.517	0.634	0.448	0.871	0.608	0.347	0.478
Lead	µmol/g	--	--		0.791	0.518	0.75	0.876	0.813	1.14	1.19	1.05	1.03	0.641	0.928
Mercury	µmol/g	--	--		R	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	--	--		0.177	0.108	0.205 J	0.214	0.178	0.332	0.371	0.258	0.205	0.197	0.174
Silver	µmol/g	--	--		0.00435 U	0.00417 U	R	0.00446 U	0.0043 U	0.00412 U	0.00434 U	0.00425 U	0.0041 U	0.0207 U	0.00422 U
Zinc	µmol/g	--	--		5.63	3.68	5.73	6.86	5.44	6.83	18.7	12.9	9.3	4.39	5.84
Wet Chemistry															
Total Organic Carbon	mg/kg	--	--		52000	59100	56500	77900	63000	117000	106000	127000	134000	101000	171000
Moisture, percent	%	--	--		46.8	46.6	48.7	48.6	46.5	45.9	46.7	46	45.1	44.7	46.1
Bioavailability of Metals															
∑SEM/AVS Ratio	-	1.0[b]	-		3.06	1.72	0.85	0.71	0.97	3.21	1.30	4.76	2.68	3.13	0.52
(∑SEM-AVS)/f_{OC}	µmole/g_{oc}	130[c]	3,000[d]		98.91	34.05	-23.90	-45.31	-3.43	52.98	46.18	94.62	52.63	37.95	-39.97

Notes:

∑SEM was calculated by summing the molar concentrations of silver divided by 2, cadmium, copper, lead, nickel, and zinc.

The AVS/SEM results for mercury were rejected due to QC deficiencies and are not presented in this table.

[a] EPA Procedures for the Derivation of Equilibrium Partitioning Sediment Benchmarks (ESBs) for the Protection of Benthic Organisms: Metal Mixtures (Cadmium, Copper, Lead, Nickel, Silver, and Zinc), EPA-600-R-02-011, January 2005.

[b] An SEM/AVS ratio of ≤1.0 indicates an excess of sulfide and probable nontoxic sediments. An SEM/AVS ratio of >1.0 indicates an excess of metal and potentially toxic sediments.

[c] Sediment in which the organic carbon-normalized excess SEM is between 130 and 3,000 µmoles/goc may have adverse biological effects.

[d] Sediment in which the organic carbon-normalized excess SEM is greater than 3,000 µmoles/goc, adverse biological effects may be expected.

Shading indicates an SEM/AVS ratio greater than 1.0.

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; f_{oc} = fraction of organic carbon; J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

Table 5. Spearman's Rank Correlation Coefficients (r_s)

Kinnickinnic River Mooring Basin Site Characterization

Analyte	Total PAH-37	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Zinc	TOC
Total PCBs	0.31	0.36	0.34	0.34	0.20	0.33	0.32	0.41	0.25	-0.11
Total PAH-37		0.82	0.66	0.72	0.69	0.64	0.86	0.49	0.74	0.67
Arsenic			0.89	0.78	0.86	0.86	0.89	0.78	0.94	0.80
Cadmium				0.68	0.84	0.88	0.74	0.87	0.93	0.71
Chromium					0.83	0.79	0.85	0.72	0.82	0.68
Copper						0.91	0.79	0.86	0.93	0.74
Lead							0.77	0.90	0.92	0.71
Mercury								0.66	0.85	0.72
Nickel									0.88	0.64
Zinc										0.77

Notes:

Strong Correlation (0.70 <= rs > 0.90)	Very Strong Correlation (rs >= 0.90)

Table 6. Mean Survival of Chironomus dilutus in Sediment Treatments

Kinnickinnic River Mooring Basin Site Characterization

Laboratory Number	Site Name	Description	1	2	3	4	5	6	7	8	Mean	Std Dev
LC	Laboratory Control	Synthetic sediment	90	80	90	100	80	90	70	100	**87.5**	3.7
FZ000204	SD010 Surface	Site SD010 Surface sediment within mooring basin	100	100	80	90	80	90	70	90	**87.5**	3.7
FZ000202	SD012 Surface	Site SD012 Surface sediment within mooring basin	80	100	80	100	70	90	80	100	**87.5**	4.1
FZ000203	SD012 Subsurface	Site SD012 Subsurface – core from 0.5 to 5 feet within mooring basin	70	80	80	30	80	50	100	70	**70**	7.6
FZ000200	SD014 Surface	Site SD014 Surface sediment upstream of mooring basin	90	80	90	60	70	70	80	90	**78.8**	4
FZ000201	SD014 Subsurface	Site SD014 Subsurface – core from 0.5 to 5 feet upstream of mooring basin	60	90	80	60	70	50	40	50	**62.5**	5.9

Table 7. Mean Growth of *Chironomus dilutus* in Sediment Treatments

Kinnickinnic River Mooring Basin Site Characterization

Laboratory Number	Site Name	Description	1	2	3	4	5	6	7	8	Mean	Standard Deviation
LC	Laboratory Control	Synthetic sediment	1.1397	0.9509	1.0097	1.7788	1.6134	1.3597	0.9639	1.1218	1.24	0.11
FZ000204	SD010 Surface	Site SD010 Surface sediment within mooring basin	0.3568	0.7198	0.9672	0.8919	0.8697	0.8419	0.9096	0.4419	0.75	0.08
FZ000202	SD012 Surface	Site SD012 Surface sediment within mooring basin	1.2234	0.8558	0.8347	1.1018	1.4468	1.1408	0.7209	1.2118	1.07	0.09
FZ000203	SD012 Subsurface	Site SD012 Subsurface – core from 0.5 to 5 feet within mooring basin	0.5786	0.64	0.6662	0.88	0.82	1.128	0.598	0.8014	0.76	0.07
FZ000200	SD014 Surface	Site SD014 Surface sediment upstream of mooring basin	0.6308	0.9384	0.8008	0.9446	1.0796	1.0025	0.8059	0.9408	0.89	0.05
FZ000201	SD014 Subsurface	Site SD014 Subsurface – core from 0.5 to 5 feet upstream of mooring basin	0.4013	0.4275	0.8472	0.7546	0.6796	0.3695	0.2669	0.4655	0.53	0.07

Table 8. Mean Survival of H *yalella azteca* in Sediment Treatments

Kinnickinnic River Mooring Basin Site Characterization

Laboratory Number	**Site Name**	**Description**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Mean**	**Std Dev**
LC	Laboratory Control	Synthetic sediment	100	100	100	100	90	90	100	90	**96.3**	1.8
FZ000204	SD010 Surface	Site SD010 Surface sediment within mooring basin	90	90	100	100	90	100	100	70	**92.5**	3.7
FZ000202	SD012 Surface	Site SD012 Surface sediment within mooring basin	60	100	100	80	90	90	80	100	**87.5**	4.9
FZ000203	SD012 Subsurface	Site SD012 Subsurface – core from 0.5 to 5 feet within mooring basin	100	80	90	80	70	70	90	100	**85**	4.2
FZ000200	SD014 Surface	Site SD014 Surface sediment upstream of mooring basin	90	100	80	100	90	90	90	90	**91.3**	2.3
FZ000201	SD014 Subsurface	Site SD014 Subsurface – core from 0.5 to 5 feet upstream of mooring basin	90	90	90	80	70	100	100	100	**90**	3.8

Table 9. Mean Growth of *Hyalella azteca* in Sediment Treatments

Kinnickinnic River Mooring Basin Site Characterization

Laboratory Number	Site Name	Description	1	2	3	4	5	6	7	8	Mean	Std Dev
LC	Laboratory Control	Synthetic sediment	0.25788	0.41587	0.51588	0.51488	0.48431	0.43764	0.54087	0.59319	0.47	0.04
FZ000204	SD010 Surface	Site SD010 Surface sediment within mooring basin	0.21431	0.21875	0.18787	0.19887	0.23208	0.22688	0.15888	0.19411	0.2	0.01
FZ000202	SD012 Surface	Site SD012 Surface sediment within mooring basin	0.22312	0.24688	0.1808	0.23609	0.21764	0.23875	0.21734	0.1617	0.22	0.01
FZ000203	SD012 Subsurface	Site SD012 Subsurface – core from 0.5 to 5 feet within mooring basin	0.178	0.265	0.17556	0.23859	0.27411	0.79571	0.23778	0.19988	0.3	0.07
FZ000200	SD014 Surface	Site SD014 Surface sediment upstream of mooring basin	0.30764	0.23688	0.29484	0.31888	0.32542	0.28431	0.27542	0.25653	0.29	0.01
FZ000201	SD014 Subsurface	Site SD014 Subsurface – core from 0.5 to 5 feet upstream of mooring basin	0.23653	0.24764	0.18653	0.20234	0.22234	0.16688	0.17987	0.20387	0.21	0.01

Table 10a. Analytical Results for Organics for Toxicity Test Samples

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-010 TX-010-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.5/5.0 5/14/2015	KKMB-SD-014 TX-014-0.0/0.5 5/14/2015	KKMB-SD-014 TX-014-0.5/5.0 5/14/2015
Wet Chemistry							
Total Organic Carbon	-	mg/kg	38300	60900	53300	34700	55300
Moisture, percent	-	%	57.2	54.3	45.2	65.5	46.8
Semivolatile Organic Compounds							
1-Methylnaphthalene	90-12-0	µg/kg	39 U	17 J	260	48 U	49
2-Methylnaphthalene	91-57-6	µg/kg	23 J	29 J	440	26 J	100
Acenaphthene	83-32-9	µg/kg	17 J	19 J	130	27 J	62
Acenaphthylene	208-96-8	µg/kg	59	53	240	55	150
Anthracene	120-12-7	µg/kg	57	69	450	78	250
Benzo(a)anthracene	56-55-3	µg/kg	160	210	1300	290	700
Benzo(a)pyrene	50-32-8	µg/kg	190	240	1300	360	720
Benzo(b)fluoranthene	205-99-2	µg/kg	210	250	1700	470	850
Benzo(e)pyrene	192-97-2	µg/kg	150	190	1200	310	550
Benzo(g,h,i)perylene	191-24-2	µg/kg	140	180	1000	290	470
Benzo(k)fluoranthene	207-08-9	µg/kg	170	270	1500	350	630
C1-Benzanthrene/chrysenes	-	µg/kg	110	140	940	170	450
C1-Fluoranthenes/Pyrenes	-	µg/kg	190	230	1700	310	880
C1-Fluorenes	-	µg/kg	16 J	17 J	140	48 U	64
C1-Naphthalenes	-	µg/kg	26 J	28 J	440	28 J	96
C1-Phenanthrenes/anthracenes	-	µg/kg	70	91	780	110	330
C2-Benzanthrene/chrysenes	-	µg/kg	49	57	410	65	190
C2-Fluoranthenes/Pyrenes	-	µg/kg	69	80	660	110	290
C2-Fluorenes	-	µg/kg	39 U	36 U	130	48 U	71
C2-Naphthalenes	-	µg/kg	19 J	35 J	450	34 J	87
C2-Phenanthrenes/anthracenes	-	µg/kg	68	84	740	89	350
C3-Benzanthrene/chrysenes	-	µg/kg	39 U	36 U	300	48 U	130
C3-Fluoranthenes/Pyrenes	-	µg/kg	42	50	420	65	170
C3-Fluorenes	-	µg/kg	39 U	36 U	30 J	48 U	31 U
C3-Naphthalenes	-	µg/kg	23 J	44	560	34 J	140
C3-Phenanthrenes/anthracenes	-	µg/kg	51	59	590	63	280
C4-Benzanthrene/chrysenes	-	µg/kg	39 U	36 U	30 U	48 U	45
C4-Naphthalenes	-	µg/kg	18 J	37	330	29 J	120
C4-Phenanthrenes/anthracenes	-	µg/kg	39 U	36 U	340	48 U	140
Chrysene	218-01-9	µg/kg	210	270	1700	420	850
Dibenzo(a,h)anthracene	53-70-3	µg/kg	38 J	48	280	72	140
Fluoranthene	206-44-0	µg/kg	310	430	2800	790	1400
Fluorene	86-73-7	µg/kg	35 J	36 J	290	40 J	130
Indeno(1,2,3-Cd)Pyrene	193-39-5	µg/kg	160	210	1200	350	570
Naphthalene	91-20-3	µg/kg	110	140	1500	89	590
Perylene	198-55-0	µg/kg	47	60	330	90	170
Phenanthrene	85-01-8	µg/kg	120	170	1400	270	580
Pyrene	129-00-0	µg/kg	230	330	1900	540	1000
Total PAH-18[1]	-	µg/kg	2389	3144	20330	4827	9742
Total PAH-37[2]	-	µg/kg	3278	4235	29455	6164	13714

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; J = Estimated; U = Nondetect; UJ = Estimated nondetect

[1] Total PAH-18 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG.

[2] Total PAH-37 calculated by summing the detected results and one-half of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-naphthalenes. 1-Methylnaphthalene and 2-methylnaphthalene were included in the sum in place of C1-naphthalenes.

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table 10b. Analytical Results for Inorganics for Toxicity Test Samples

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-010 TX-010-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.5/5.0 5/14/2015	KKMB-SD-014 TX-014-0.0/0.5 5/14/2015	KKMB-SD-014 TX-014-0.5/5.0 5/14/2015
Metals							
Aluminum	7429-90-5	mg/kg	12700	13900	17000	17900	16400
Antimony	7440-36-0	mg/kg	9.25 U	8.75 U	7.23 U	11.5 U	7.44 U
Arsenic	7440-38-2	mg/kg	12.2	12.6	15	14.6	19.2
Barium	7440-39-3	mg/kg	109	113	121	138	131
Beryllium	7440-41-7	mg/kg	0.585	0.683	0.693	0.782	0.839
Cadmium	7440-43-9	mg/kg	3.47	3.59	4.85	2.81 J	8.18
Chromium	7440-47-3	mg/kg	126	132	176	109	346
Cobalt	7440-48-4	mg/kg	7.96	8.32	8.92	10.6	9.51
Copper	7440-50-8	mg/kg	71.4	80.5	93.9	108	106
Lead	7439-92-1	mg/kg	145	155	198	175	397
Manganese	7439-96-5	mg/kg	555	552	528	647	550
Mercury	7439-97-6	mg/kg	0.447 J	0.542	0.78	0.262 J	0.805
Nickel	7440-02-0	mg/kg	24.5	27.7	30.4	32.5	38.3
Selenium	7782-49-2	mg/kg	3.53 J	3.28 J	3.38 J	4.69 J	2.2 J
Thallium	7440-28-0	mg/kg	2.36 J	2.07 J	1.72 J	2.73 J	1.71 J
Vanadium	7440-62-2	mg/kg	25.8	27.3	31.9	34.5	47.2
Zinc	7440-66-6	mg/kg	403	436	520	530	691
Cyanide	57-12-5	mg/kg	0.6 J	0.55 J	0.89 U	0.87	1.2

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table 10c. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals for Toxicity Test Samples

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-010 TX-010-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.5/5.0 5/14/2015	KKMB-SD-014 TX-014-0.0/0.5 5/14/2015	KKMB-SD-014 TX-014-0.5/5.0 5/14/2015
AVS/SEM						
Acid Volatile Sulfide	µmol/g	5.6	2.5 J	10.3	10.4	15.7
Cadmium	µmol/g	0.0217	0.0244	0.0344	0.0188	0.0536
Copper	µmol/g	0.58	0.668	0.511	0.818	0.558
Lead	µmol/g	0.521	0.629	0.806	0.68	1.3
Mercury	µmol/g	-- R	-- R	-- R	-- R	-- R
Nickel	µmol/g	0.132	0.218	0.173	0.254	0.207
Silver	µmol/g	0.00523 U	0.00495 U	0.00407 U	0.00648 U	0.00417 U
Zinc	µmol/g	3.85	4.33	5.15	5.39	7.4
Sum SEM-AVS/foc		-12.9	55.4	-68.0	-93.3	-111.7
Wet Chemistry						
Total Organic Carbon	mg/kg	38300	60900	53300	34700	55300
Moisture, percent	%	57.2	54.3	45.2	65.5	46.8

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram; J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table 11. Unvalidated Analytical Results for Toxicity Test Samples from the Wisconsin State Laboratory of Hygiene

Kinnickinnic River Mooring Basin Site Characterization

Sample Location	TOC (%)	PAH-16	As	Cd	Cr	Cu	Pb	Hg	Ni	Zn
		mg/kg DW								
KKMB-SD-012TOX_0.5-5	7.512	123.9	8.49	5.64	230	119	221	0.649	30.1	517
KKMB-SD-012TOX_0-0.5	6.607	86.8	3.87	3.51	144	97.5	143	0.422	24.4	403
KKMB-SD-014TOX_0-0.5	7.004	97.4	4.33	2.57	99.8	111	140	0.244	28.2	431
KKMB-SD-014TOX_0.5-5	7.174	109.8	9.11	6.86	338	121	272	0.659	32.5	572

mg/kg DW = milligram per kilogram dry weight

Figures

Figure 1
Site Location and Project Area
Kinnickinnic River Mooring Basin
Site Characterization Sampling Plan
Milwaukee, WI

ch2m:

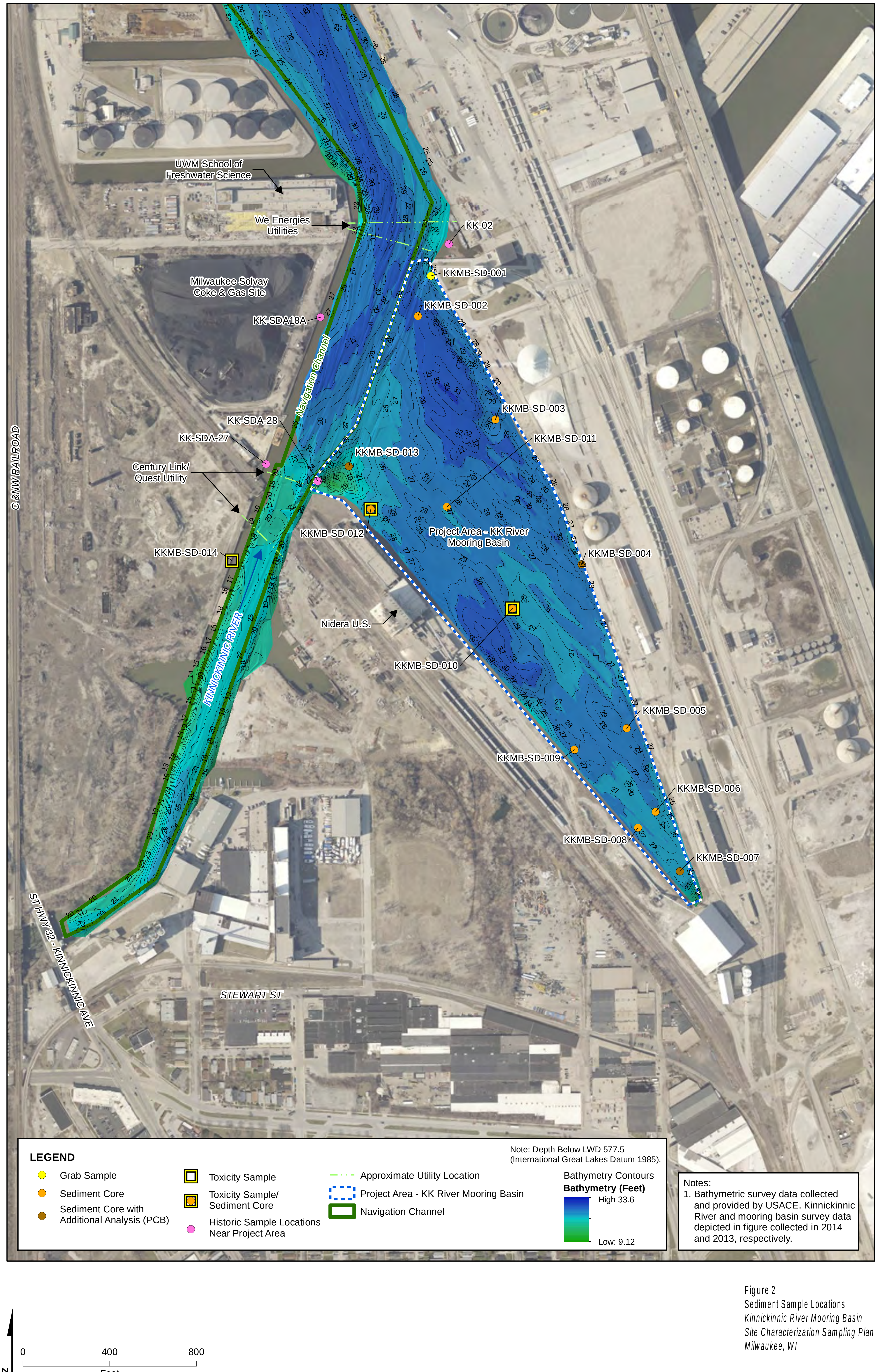
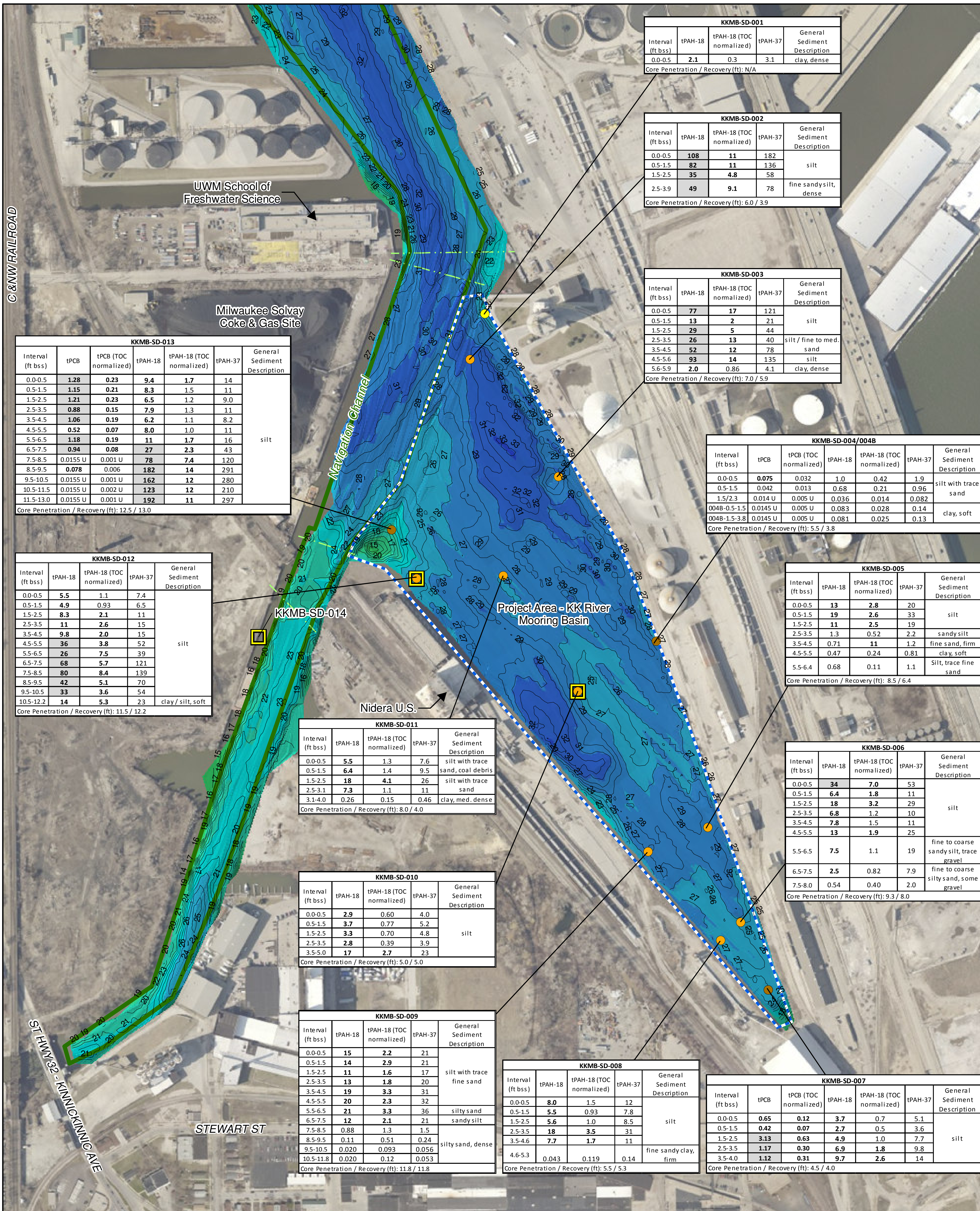


Figure 2
Sediment Sample Locations
Kinnickinnic River Mooring Basin
Site Characterization Sampling Plan
Milwaukee, WI

ch2m:



KKMB-SD-001				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**2.1**	0.3	3.1	clay, dense
Core Penetration / Recovery (ft): N/A				

KKMB-SD-002				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**108**	**11**	182	silt
0.5-1.5	**82**	**11**	136	
1.5-2.5	**35**	**4.8**	58	
2.5-3.9	**49**	**9.1**	78	fine sandy silt, dense
Core Penetration / Recovery (ft): 6.0 / 3.9				

KKMB-SD-003				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**77**	**17**	121	silt
0.5-1.5	**13**	**2**	21	
1.5-2.5	**29**	**5**	44	
2.5-3.5	**26**	**13**	40	silt / fine to med. sand
3.5-4.5	**52**	**12**	78	
4.5-5.6	**93**	**14**	135	silt
5.6-5.9	**2.0**	0.86	4.1	clay, dense
Core Penetration / Recovery (ft): 7.0 / 5.9				

KKMB-SD-013						
Interval (ft bss)	tPCB	tPCB (TOC normalized)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**1.28**	**0.23**	**9.4**	**1.7**	14	silt
0.5-1.5	**1.15**	**0.21**	**8.3**	1.5	11	
1.5-2.5	**1.21**	**0.23**	**6.5**	1.2	9.0	
2.5-3.5	**0.88**	**0.15**	**7.9**	1.3	11	
3.5-4.5	**1.06**	**0.19**	**6.2**	1.1	8.2	
4.5-5.5	**0.52**	**0.07**	**8.0**	1.0	11	
5.5-6.5	**1.18**	**0.19**	**11**	**1.7**	16	
6.5-7.5	**0.94**	**0.08**	**27**	**2.3**	43	
7.5-8.5	0.0155 U	0.001 U	**78**	**7.4**	120	
8.5-9.5	**0.078**	0.006	**182**	**14**	291	
9.5-10.5	0.0155 U	0.001 U	**162**	**12**	280	
10.5-11.5	0.0155 U	0.002 U	**123**	**12**	210	
11.5-13.0	0.0155 U	0.001 U	**192**	**11**	297	
Core Penetration / Recovery (ft): 12.5 / 13.0						

KKMB-SD-004/004B						
Interval (ft bss)	tPCB	tPCB (TOC normalized)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**0.075**	0.032	1.0	0.42	1.9	silt with trace sand
0.5-1.5	0.042	0.013	0.68	0.21	0.96	
1.5/2.3	0.014 U	0.005 U	0.036	0.014	0.082	
004B-0.5-1.5	0.0145 U	0.005 U	0.083	0.028	0.14	clay, soft
004B-1.5-3.8	0.0145 U	0.005 U	0.081	0.025	0.13	
Core Penetration / Recovery (ft): 5.5 / 3.8						

KKMB-SD-012				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**5.5**	1.1	7.4	silt
0.5-1.5	**4.9**	0.93	6.5	
1.5-2.5	**8.3**	**2.1**	11	
2.5-3.5	**11**	**2.6**	15	
3.5-4.5	**9.8**	**2.0**	15	
4.5-5.5	**36**	**3.8**	52	
5.5-6.5	**26**	**7.5**	39	
6.5-7.5	**68**	**5.7**	121	
7.5-8.5	**80**	**8.4**	139	
8.5-9.5	**42**	**5.1**	70	
9.5-10.5	**33**	**3.6**	54	
10.5-12.2	**14**	**5.3**	23	clay / silt, soft
Core Penetration / Recovery (ft): 11.5 / 12.2				

KKMB-SD-005				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**13**	**2.8**	20	silt
0.5-1.5	**19**	**2.6**	33	
1.5-2.5	**11**	**2.5**	19	
2.5-3.5	1.3	0.52	2.2	sandy silt
3.5-4.5	0.71	**11**	1.2	fine sand, firm
4.5-5.5	0.47	0.24	0.81	clay, soft
5.5-6.4	0.68	0.11	1.1	Silt, trace fine sand
Core Penetration / Recovery (ft): 8.5 / 6.4				

KKMB-SD-011				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**5.5**	1.3	7.6	silt with trace sand, coal debris
0.5-1.5	**6.4**	1.4	9.5	
1.5-2.5	**18**	**4.1**	26	silt with trace sand
2.5-3.1	**7.3**	1.1	11	
3.1-4.0	0.26	0.15	0.46	clay, med. dense
Core Penetration / Recovery (ft): 8.0 / 4.0				

KKMB-SD-006				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**34**	**7.0**	53	silt
0.5-1.5	**6.4**	**1.8**	11	
1.5-2.5	**18**	**3.2**	29	
2.5-3.5	**6.8**	1.2	10	
3.5-4.5	**7.8**	1.5	11	
4.5-5.5	**13**	**1.9**	25	
5.5-6.5	**7.5**	1.1	19	fine to coarse sandy silt, trace gravel
6.5-7.5	**2.5**	0.82	7.9	fine to coarse silty sand, some gravel
7.5-8.0	0.54	0.40	2.0	
Core Penetration / Recovery (ft): 9.3 / 8.0				

KKMB-SD-010				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**2.9**	0.60	4.0	silt
0.5-1.5	**3.7**	0.77	5.2	
1.5-2.5	**3.3**	0.70	4.8	
2.5-3.5	**2.8**	0.39	3.9	
3.5-5.0	**17**	**2.7**	23	
Core Penetration / Recovery (ft): 5.0 / 5.0				

KKMB-SD-009				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**15**	**2.2**	21	silt with trace fine sand
0.5-1.5	**14**	**2.9**	21	
1.5-2.5	**11**	**1.6**	17	
2.5-3.5	**13**	**1.8**	20	
3.5-4.5	**19**	**3.3**	31	
4.5-5.5	**20**	**2.3**	32	
5.5-6.5	**21**	**3.3**	36	silty sand
6.5-7.5	**12**	**2.1**	21	sandy silt
7.5-8.5	0.88	1.3	1.5	silty sand, dense
8.5-9.5	0.11	0.51	0.24	
9.5-10.5	0.020	0.093	0.056	
10.5-11.8	0.020	0.12	0.053	
Core Penetration / Recovery (ft): 11.8 / 11.8				

KKMB-SD-008				
Interval (ft bss)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**8.0**	1.5	12	silt
0.5-1.5	**5.5**	0.93	7.8	
1.5-2.5	**5.6**	1.0	8.5	
2.5-3.5	**18**	**3.5**	31	
3.5-4.6	**7.7**	**1.7**	11	
4.6-5.3	0.043	0.119	0.14	fine sandy clay, firm
Core Penetration / Recovery (ft): 5.5 / 5.3				

KKMB-SD-007						
Interval (ft bss)	tPCB	tPCB (TOC normalized)	tPAH-18	tPAH-18 (TOC normalized)	tPAH-37	General Sediment Description
0.0-0.5	**0.65**	**0.12**	**3.7**	0.7	5.1	silt
0.5-1.5	**0.42**	**0.07**	**2.7**	0.5	3.6	
1.5-2.5	**3.13**	**0.63**	**4.9**	1.0	7.7	
2.5-3.5	**1.17**	**0.30**	**6.9**	**1.8**	9.8	
3.5-4.0	**1.12**	**0.31**	**9.7**	**2.6**	14	
Core Penetration / Recovery (ft): 4.5 / 4.0						

LEGEND

- Grab Sample
- Sediment Core
- Sediment Core with Additional Analysis (PCB)
- Toxicity Sample
- Toxicity Sample/ Sediment Core
- Approximate Utility Location
- Project Area - KK River Mooring Basin
- Navigation Channel

Bold values represent results greater than the Wisconsin TEC.

Shading represents results greater than the Wisconsin PEC.

- Bathymetry Contours

Note: Depth Below LWD 577.5 (International Great Lakes Datum 1985).

Bathymetry (Feet)

High 33.6

Low: 9.12

Notes:
1. All PCB and PAH concentrations are in mg/kg.
2. Bathymetric survey data collected and provided by USACE. Kinnickinnic River and mooring basin survey data depicted in figure collected in 2014 and 2013, respectively.
3. TOC-normalized and non-normalized values for total PCB and total PAH-18 concentrations have been screened against Threshold Effect Concentration (TEC) and Probable Effect Concentration (PEC) values listed within the Wisconsin Department of Natural Resources (WDNR) Consensus-Based Sediment Quality Guidelines (CBSQG), December 2003.

N

0 400 800

Feet

Figure 3
Summary of Total PAH and Total PCB Results
Kinnickinnic River Mooring Basin Site Characterization Sampling Plan
Milwaukee, WI

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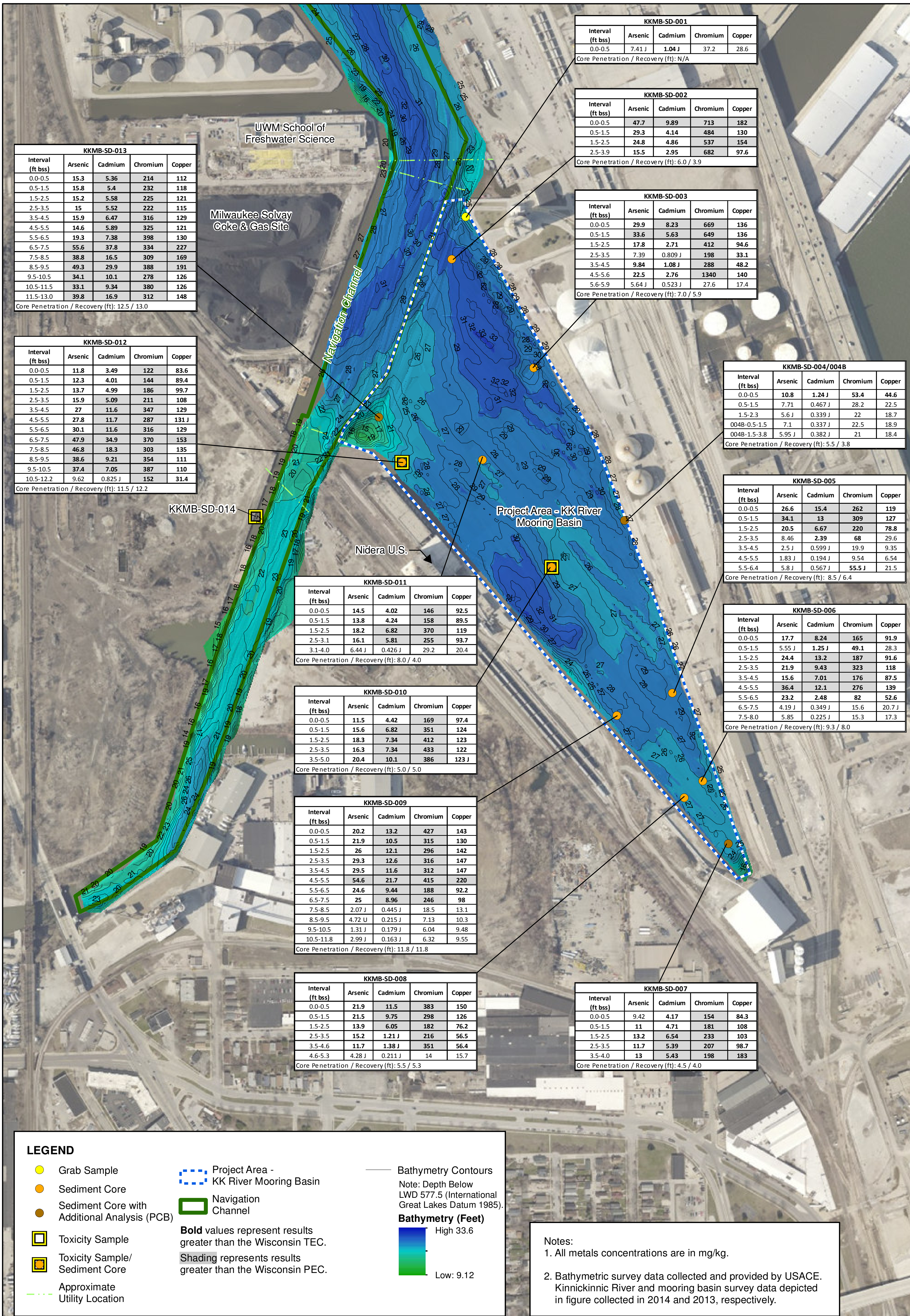

KKMB-SD-001				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	7.41 J	**1.04 J**	37.2	28.6
Core Penetration / Recovery (ft): N/A				

KKMB-SD-002				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**47.7**	**9.89**	**713**	**182**
0.5-1.5	**29.3**	**4.14**	**484**	**130**
1.5-2.5	**24.8**	**4.86**	**537**	**154**
2.5-3.9	**15.5**	**2.95**	**682**	**97.6**
Core Penetration / Recovery (ft): 6.0 / 3.9				

KKMB-SD-003				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**29.9**	**8.23**	**669**	**136**
0.5-1.5	**33.6**	**5.63**	**649**	**136**
1.5-2.5	**17.8**	**2.71**	**412**	**94.6**
2.5-3.5	7.39	0.809 J	**198**	**33.1**
3.5-4.5	**9.84**	**1.08 J**	**288**	**48.2**
4.5-5.6	**22.5**	**2.76**	**1340**	**140**
5.6-5.9	5.64 J	0.523 J	27.6	17.4
Core Penetration / Recovery (ft): 7.0 / 5.9				

KKMB-SD-004/004B				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**10.8**	**1.24 J**	**53.4**	**44.6**
0.5-1.5	7.71	0.467 J	28.2	22.5
1.5-2.3	5.6 J	0.339 J	22	18.7
004B-0.5-1.5	7.1	0.337 J	22.5	18.9
004B-1.5-3.8	5.95 J	0.382 J	21	18.4
Core Penetration / Recovery (ft): 5.5 / 3.8				

KKMB-SD-005				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**26.6**	**15.4**	**262**	**119**
0.5-1.5	**34.1**	**13**	**309**	**127**
1.5-2.5	**20.5**	**6.67**	**220**	**78.8**
2.5-3.5	8.46	**2.39**	**68**	29.6
3.5-4.5	2.5 J	0.599 J	19.9	9.35
4.5-5.5	1.83 J	0.194 J	9.54	6.54
5.5-6.4	5.8 J	0.567 J	**55.5 J**	21.5
Core Penetration / Recovery (ft): 8.5 / 6.4				

KKMB-SD-006				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**17.7**	**8.24**	**165**	**91.9**
0.5-1.5	5.55 J	**1.25 J**	**49.1**	28.3
1.5-2.5	**24.4**	**13.2**	**187**	**91.6**
2.5-3.5	**21.9**	**9.43**	**323**	**118**
3.5-4.5	**15.6**	**7.01**	**176**	**87.5**
4.5-5.5	**36.4**	**12.1**	**276**	**139**
5.5-6.5	**23.2**	**2.48**	**82**	**52.6**
6.5-7.5	4.19 J	0.349 J	15.6	20.7 J
7.5-8.0	5.85	0.225 J	15.3	17.3
Core Penetration / Recovery (ft): 9.3 / 8.0				

KKMB-SD-007				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	9.42	**4.17**	**154**	**84.3**
0.5-1.5	**11**	**4.71**	**181**	**108**
1.5-2.5	**13.2**	**6.54**	**233**	**103**
2.5-3.5	**11.7**	**5.39**	**207**	**98.7**
3.5-4.0	**13**	**5.43**	**198**	**183**
Core Penetration / Recovery (ft): 4.5 / 4.0				

KKMB-SD-008				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**21.9**	**11.5**	**383**	**150**
0.5-1.5	**21.5**	**9.75**	**298**	**126**
1.5-2.5	**13.9**	**6.05**	**182**	**76.2**
2.5-3.5	**15.2**	**1.21 J**	**216**	**56.5**
3.5-4.6	**11.7**	**1.38 J**	**351**	**56.4**
4.6-5.3	4.28 J	0.211 J	14	15.7
Core Penetration / Recovery (ft): 5.5 / 5.3				

KKMB-SD-009				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**20.2**	**13.2**	**427**	**143**
0.5-1.5	**21.9**	**10.5**	**315**	**130**
1.5-2.5	**26**	**12.1**	**296**	**142**
2.5-3.5	**29.3**	**12.6**	**316**	**147**
3.5-4.5	**29.5**	**11.6**	**312**	**147**
4.5-5.5	**54.6**	**21.7**	**415**	**220**
5.5-6.5	**24.6**	**9.44**	**188**	**92.2**
6.5-7.5	**25**	**8.96**	**246**	**98**
7.5-8.5	2.07 J	0.445 J	18.5	13.1
8.5-9.5	4.72 U	0.215 J	7.13	10.3
9.5-10.5	1.31 J	0.179 J	6.04	9.48
10.5-11.8	2.99 J	0.163 J	6.32	9.55
Core Penetration / Recovery (ft): 11.8 / 11.8				

KKMB-SD-010				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**11.5**	**4.42**	**169**	**97.4**
0.5-1.5	**15.6**	**6.82**	**351**	**124**
1.5-2.5	**18.3**	**7.34**	**412**	**123**
2.5-3.5	**16.3**	**7.34**	**433**	**122**
3.5-5.0	**20.4**	**10.1**	**386**	**123 J**
Core Penetration / Recovery (ft): 5.0 / 5.0				

KKMB-SD-011				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**14.5**	**4.02**	**146**	**92.5**
0.5-1.5	**13.8**	**4.24**	**158**	**89.5**
1.5-2.5	**18.2**	**6.82**	**370**	**119**
2.5-3.1	**16.1**	**5.81**	**255**	**93.7**
3.1-4.0	6.44 J	0.426 J	29.2	20.4
Core Penetration / Recovery (ft): 8.0 / 4.0				

KKMB-SD-012				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**11.8**	**3.49**	**122**	**83.6**
0.5-1.5	**12.3**	**4.01**	**144**	**89.4**
1.5-2.5	**13.7**	**4.99**	**186**	**99.7**
2.5-3.5	**15.9**	**5.09**	**211**	**108**
3.5-4.5	**27**	**11.6**	**347**	**129**
4.5-5.5	**27.8**	**11.7**	**287**	**131 J**
5.5-6.5	**30.1**	**11.6**	**316**	**129**
6.5-7.5	**47.9**	**34.9**	**370**	**153**
7.5-8.5	**46.8**	**18.3**	**303**	**135**
8.5-9.5	**38.6**	**9.21**	**354**	**111**
9.5-10.5	**37.4**	**7.05**	**387**	**110**
10.5-12.2	9.62	0.825 J	**152**	**31.4**
Core Penetration / Recovery (ft): 11.5 / 12.2				

KKMB-SD-013				
Interval (ft bss)	Arsenic	Cadmium	Chromium	Copper
0.0-0.5	**15.3**	**5.36**	**214**	**112**
0.5-1.5	**15.8**	**5.4**	**232**	**118**
1.5-2.5	**15.2**	**5.58**	**225**	**121**
2.5-3.5	**15**	**5.52**	**222**	**115**
3.5-4.5	**15.9**	**6.47**	**316**	**129**
4.5-5.5	**14.6**	**5.89**	**325**	**121**
5.5-6.5	**19.3**	**7.38**	**398**	**130**
6.5-7.5	**55.6**	**37.8**	**334**	**227**
7.5-8.5	**38.8**	**16.5**	**309**	**169**
8.5-9.5	**49.3**	**29.9**	**388**	**191**
9.5-10.5	**34.1**	**10.1**	**278**	**126**
10.5-11.5	**33.1**	**9.34**	**380**	**126**
11.5-13.0	**39.8**	**16.9**	**312**	**148**
Core Penetration / Recovery (ft): 12.5 / 13.0				

LEGEND

- Grab Sample
- Sediment Core
- Sediment Core with Additional Analysis (PCB)
- Toxicity Sample
- Toxicity Sample/ Sediment Core
- Approximate Utility Location
- Project Area - KK River Mooring Basin
- Navigation Channel
- Bathymetry Contours

Bold values represent results greater than the Wisconsin TEC.

Shading represents results greater than the Wisconsin PEC.

Note: Depth Below LWD 577.5 (International Great Lakes Datum 1985).

Bathymetry (Feet)

High 33.6

Low: 9.12

Notes:
1. All metals concentrations are in mg/kg.
2. Bathymetric survey data collected and provided by USACE. Kinnickinnic River and mooring basin survey data depicted in figure collected in 2014 and 2013, respectively.

N

0 400 800

Feet

Figure 4a
Summary of Select Metals
Kinnickinnic River Mooring Basin
Site Characterization Sampling Plan
Milwaukee, WI

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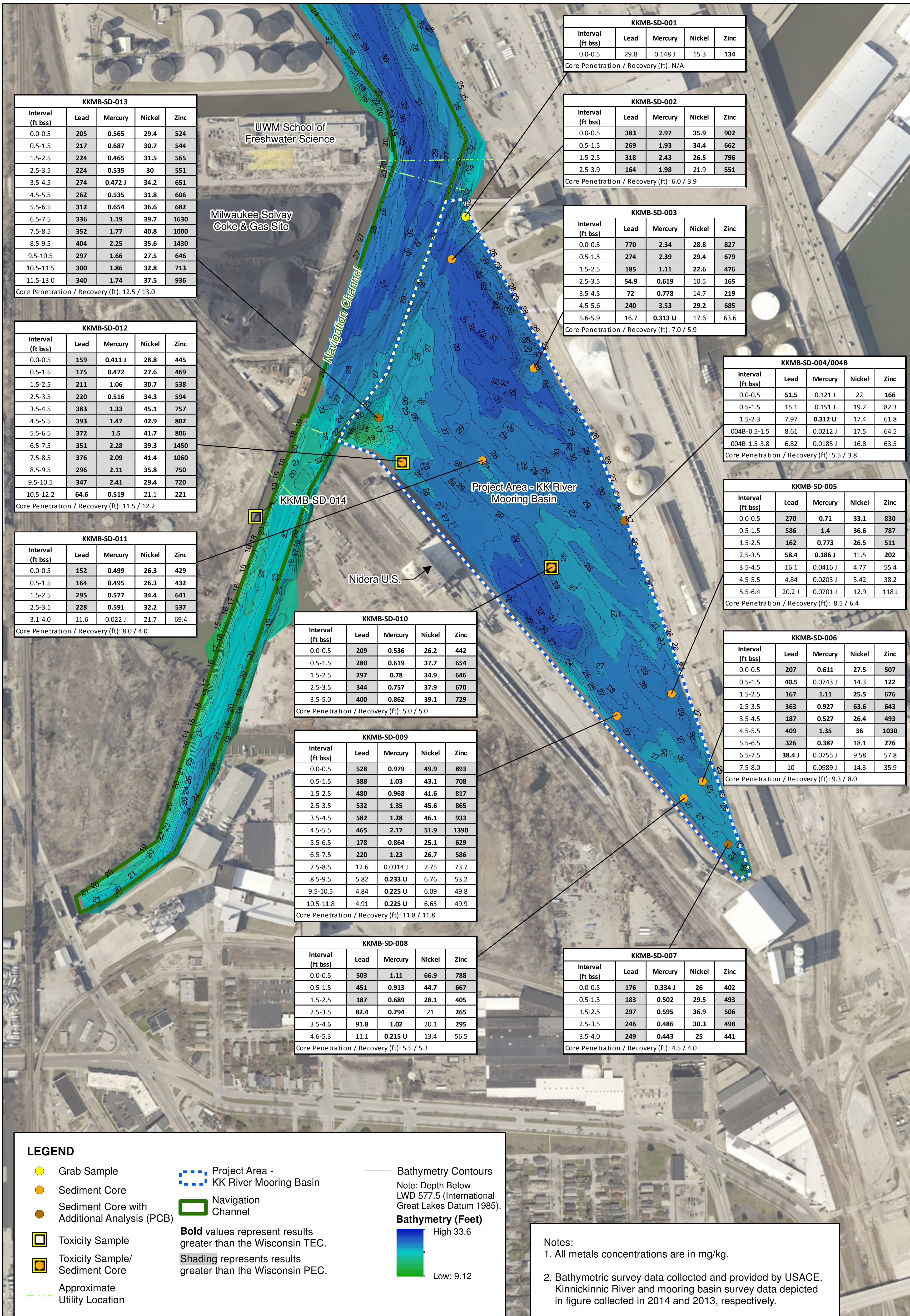
Document Path: \\MKEFPP01\Proj\GIS\EPA\KKRiverMooringBasinRI\MapFiles\Data_Eval\Fig4a_MetalsSummary.mxd User Name: AESPEJO Date: 12/15/2015 Time: 2:49:44 PM



KKMB-SD-001

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	29.8	0.148 J	15.3	**134**
Core Penetration / Recovery (ft): N/A				

KKMB-SD-002

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**383**	**2.97**	**35.9**	**902**
0.5-1.5	**269**	**1.93**	**34.4**	**662**
1.5-2.5	**318**	**2.43**	**26.5**	**796**
2.5-3.9	**164**	**1.98**	21.9	**551**
Core Penetration / Recovery (ft): 6.0 / 3.9				

KKMB-SD-003

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**770**	**2.34**	**28.8**	**827**
0.5-1.5	**274**	**2.39**	**29.4**	**679**
1.5-2.5	**185**	**1.11**	**22.6**	**476**
2.5-3.5	**54.9**	**0.619**	10.5	**165**
3.5-4.5	**72**	**0.778**	14.7	**219**
4.5-5.6	**240**	**3.53**	**29.2**	**685**
5.6-5.9	16.7	**0.313 U**	17.6	63.6
Core Penetration / Recovery (ft): 7.0 / 5.9				

KKMB-SD-004/004B

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**51.5**	0.121 J	22	**166**
0.5-1.5	15.1	0.151 J	19.2	82.3
1.5-2.3	7.97	**0.312 U**	17.4	61.8
004B-0.5-1.5	8.61	0.0212 J	17.5	64.5
004B-1.5-3.8	6.82	0.0185 J	16.8	63.5
Core Penetration / Recovery (ft): 5.5 / 3.8				

KKMB-SD-005

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**270**	**0.71**	**33.1**	**830**
0.5-1.5	**586**	**1.4**	**36.6**	**787**
1.5-2.5	**162**	**0.773**	**26.5**	**511**
2.5-3.5	**58.4**	**0.186 J**	11.5	**202**
3.5-4.5	16.1	0.0416 J	4.77	55.4
4.5-5.5	4.84	0.0203 J	5.42	38.2
5.5-6.4	20.2 J	0.0701 J	12.9	118 J
Core Penetration / Recovery (ft): 8.5 / 6.4				

KKMB-SD-006

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**207**	**0.611**	**27.5**	**507**
0.5-1.5	**40.5**	0.0743 J	14.3	**122**
1.5-2.5	**167**	**1.11**	**25.5**	**676**
2.5-3.5	**363**	**0.927**	**63.6**	**643**
3.5-4.5	**187**	**0.527**	**26.4**	**493**
4.5-5.5	**409**	**1.35**	**36**	**1030**
5.5-6.5	**326**	**0.387**	18.1	**276**
6.5-7.5	**38.4 J**	0.0755 J	9.58	57.8
7.5-8.0	10	0.0989 J	14.3	35.9
Core Penetration / Recovery (ft): 9.3 / 8.0				

KKMB-SD-007

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**176**	**0.334 J**	**26**	**402**
0.5-1.5	**183**	**0.502**	**29.5**	**493**
1.5-2.5	**297**	**0.595**	**36.9**	**506**
2.5-3.5	**246**	**0.486**	**30.3**	**498**
3.5-4.0	**249**	**0.443**	**25**	**441**
Core Penetration / Recovery (ft): 4.5 / 4.0				

KKMB-SD-008

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**503**	**1.11**	**66.9**	**788**
0.5-1.5	**451**	**0.913**	**44.7**	**667**
1.5-2.5	**187**	**0.689**	**28.1**	**405**
2.5-3.5	**82.4**	**0.794**	21	**265**
3.5-4.6	**91.8**	**1.02**	20.1	**295**
4.6-5.3	11.1	**0.215 U**	13.4	56.5
Core Penetration / Recovery (ft): 5.5 / 5.3				

KKMB-SD-009

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**528**	**0.979**	**49.9**	**893**
0.5-1.5	**388**	**1.03**	**43.1**	**708**
1.5-2.5	**480**	**0.968**	**41.6**	**817**
2.5-3.5	**532**	**1.35**	**45.6**	**865**
3.5-4.5	**582**	**1.28**	**46.1**	**933**
4.5-5.5	**465**	**2.17**	**51.9**	**1390**
5.5-6.5	**178**	**0.864**	**25.1**	**629**
6.5-7.5	**220**	**1.23**	**26.7**	**586**
7.5-8.5	12.6	0.0314 J	7.75	73.7
8.5-9.5	5.82	**0.233 U**	6.76	53.2
9.5-10.5	4.84	**0.225 U**	6.09	49.8
10.5-11.8	4.91	**0.225 U**	6.65	49.9
Core Penetration / Recovery (ft): 11.8 / 11.8				

KKMB-SD-010

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**209**	**0.536**	**26.2**	**442**
0.5-1.5	**280**	**0.619**	**37.7**	**654**
1.5-2.5	**297**	**0.78**	**34.9**	**646**
2.5-3.5	**344**	**0.757**	**37.9**	**670**
3.5-5.0	**400**	**0.862**	**39.1**	**729**
Core Penetration / Recovery (ft): 5.0 / 5.0				

KKMB-SD-011

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**152**	**0.499**	**26.3**	**429**
0.5-1.5	**164**	**0.495**	**26.3**	**432**
1.5-2.5	**295**	**0.577**	**34.4**	**641**
2.5-3.1	**228**	**0.591**	**32.2**	**537**
3.1-4.0	11.6	0.022 J	21.7	69.4
Core Penetration / Recovery (ft): 8.0 / 4.0				

KKMB-SD-012

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**159**	**0.411 J**	**28.8**	**445**
0.5-1.5	**175**	**0.472**	**27.6**	**469**
1.5-2.5	**211**	**1.06**	**30.7**	**538**
2.5-3.5	**220**	**0.516**	**34.3**	**594**
3.5-4.5	**383**	**1.33**	**45.1**	**757**
4.5-5.5	**393**	**1.47**	**42.9**	**802**
5.5-6.5	**372**	**1.5**	**41.7**	**806**
6.5-7.5	**351**	**2.28**	**39.3**	**1450**
7.5-8.5	**376**	**2.09**	**41.4**	**1060**
8.5-9.5	**296**	**2.11**	**35.8**	**750**
9.5-10.5	**347**	**2.41**	**29.4**	**720**
10.5-12.2	**64.6**	**0.519**	21.1	**221**
Core Penetration / Recovery (ft): 11.5 / 12.2				

KKMB-SD-013

Interval (ft bss)	Lead	Mercury	Nickel	Zinc
0.0-0.5	**205**	**0.565**	**29.4**	**524**
0.5-1.5	**217**	**0.687**	**30.7**	**544**
1.5-2.5	**224**	**0.465**	**31.5**	**565**
2.5-3.5	**224**	**0.535**	**30**	**551**
3.5-4.5	**274**	**0.472 J**	**34.2**	**651**
4.5-5.5	**262**	**0.535**	**31.8**	**606**
5.5-6.5	**312**	**0.654**	**36.6**	**682**
6.5-7.5	**336**	**1.19**	**39.7**	**1630**
7.5-8.5	**352**	**1.77**	**40.8**	**1000**
8.5-9.5	**404**	**2.25**	**35.6**	**1430**
9.5-10.5	**297**	**1.66**	**27.5**	**646**
10.5-11.5	**300**	**1.86**	**32.8**	**713**
11.5-13.0	**340**	**1.74**	**37.5**	**936**
Core Penetration / Recovery (ft): 12.5 / 13.0				

Figure 4b
Summary of Select Metals
Kinnickinnic River Mooring Basin
Site Characterization Sampling Plan
Milwaukee, WI

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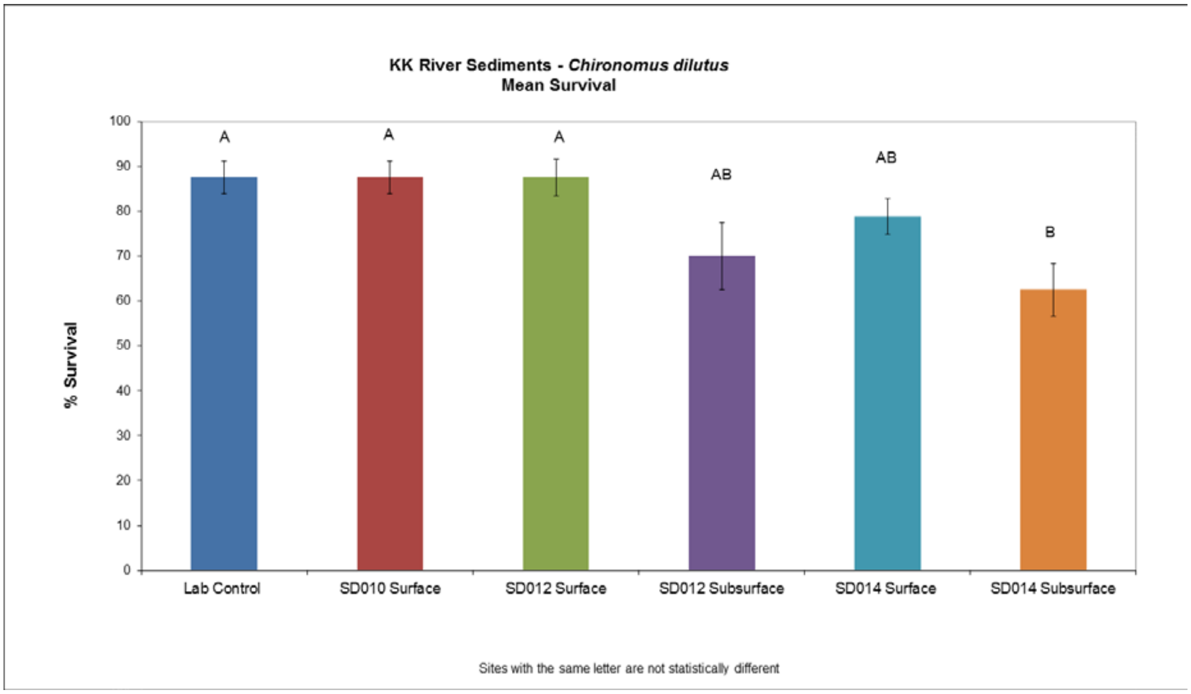

Figure 5a. Mean Survival of *Chironomus dilutus* in Kinnickinnic River Sediment Treatments.

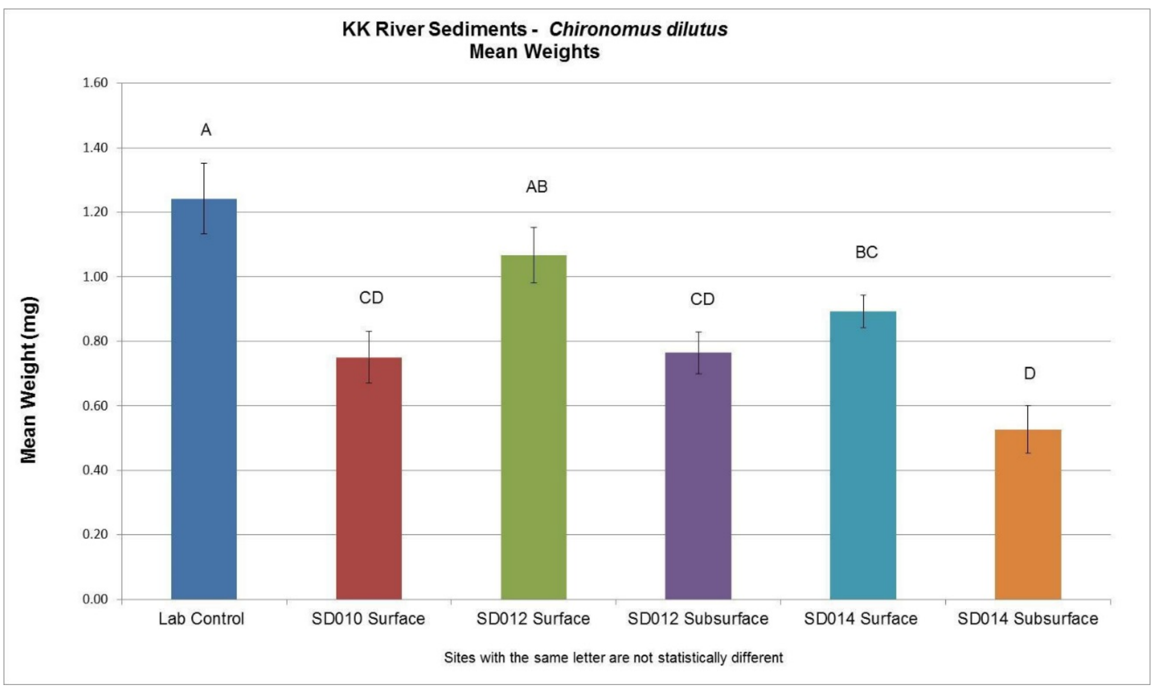

Figure 5b. Mean Growth of *Chironomus dilutus* in Kinnickinnic River Sediment Treatments.

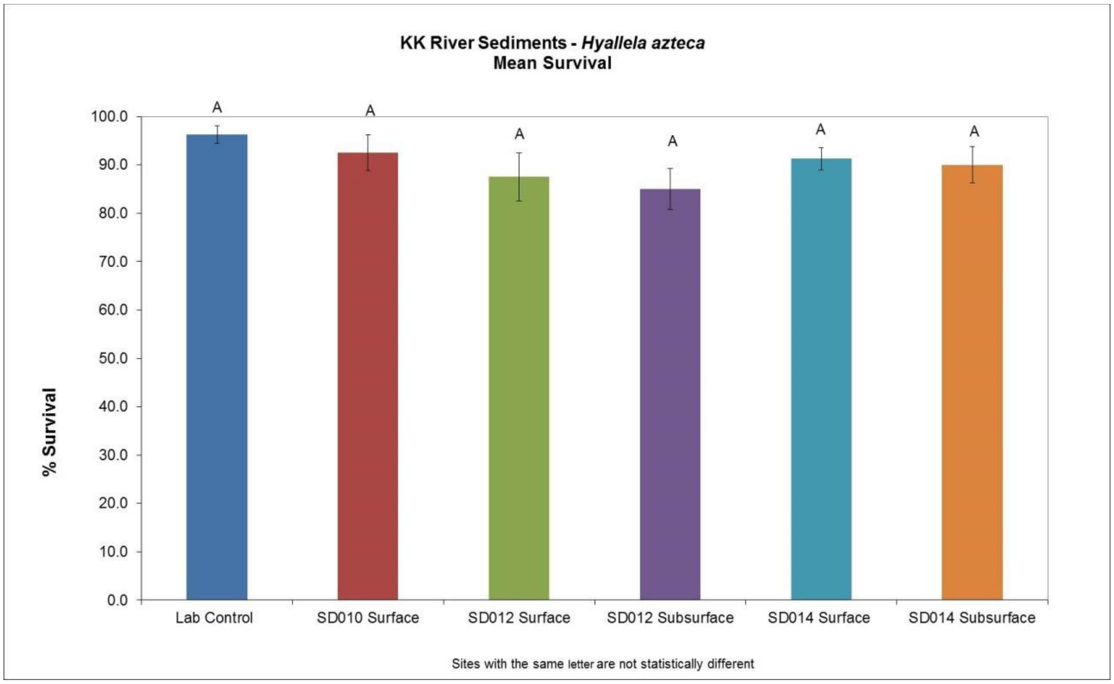

Figure 6a. Mean Survival of *Hyalella azteca* in Kinnickinnic River Sediment Treatments.

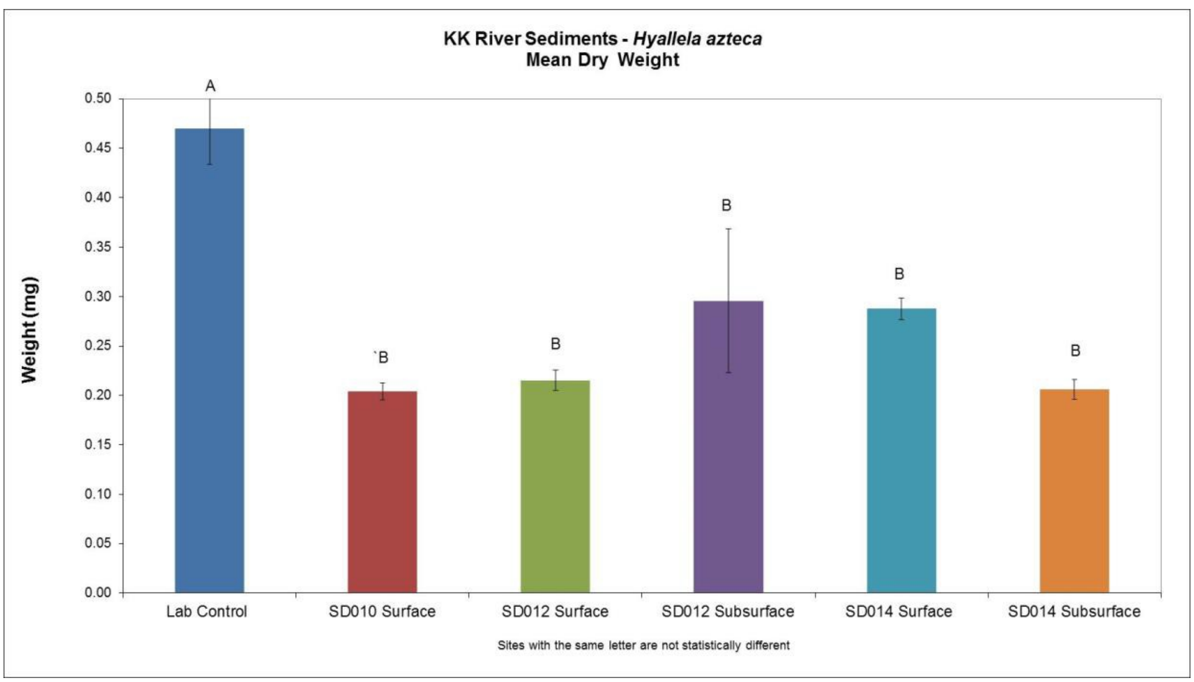

Figure 6b. Mean Growth of *Hyalella azteca* in Kinnickinnic River Sediment Treatments.

Appendix A
Data Usability Report

Data Usability Report
Kinnickinnic River Mooring Basin, Milwaukee Estuary Area of Concern
EPA GLAES Contract
Task Order No. 0021/Contract No. EP-R5-11-09

PREPARED FOR:	U.S. Environmental Protection Agency (EPA)
PREPARED BY:	CH2M HILL (CH2M)
DATE:	December 18, 2015
PROJECT NUMBER:	658988.AN.01

This data usability report assesses the quality of the data collected during the site characterization activities performed at the Kinnickinnic River Mooring Basin (KKMB), within the Milwaukee Estuary Area of Concern in Milwaukee, Wisconsin. Field investigation activities were conducted from May 11 through 15, 2015, in accordance with the field sampling plan (CH2M 2015a) and data quality objectives (DQOs) (CH2M 2015b). Field and analytical results were evaluated using the criteria of precision, accuracy, representativeness, comparability, and completeness. Sample collection methods, processing and analytical methods, general field observations, and the analytical data will be summarized in the site characterization report.

Field Data

The deviations from the sampling program and potential impacts on the usability of the data and decision making are presented in the following subsections.

Surveying

The precision and accuracy of surveyed locations are important in meeting the DQOs. Positioning of the vessel and recording the horizontal position of sediment core locations were accomplished with the use of differential global positioning system (GPS) receivers (capable of submeter accuracy) attached to the R/V Mudpuppy II. Sampling locations were referenced horizontally, to submeter accuracy, using latitude and longitude in degrees and decimal minute format within the World Geodetic System of 1984 coordinate system. GPS data checklists were completed and are provided in Attachment 1.

Sediment Probing

Sediment probing was conducted at each proposed sample location in order to gauge available sediment thickness for recovery with the vibracore sampler, as well as to aid in selecting an appropriate length of vibracore sample liner. If probing encountered minimal sediment thickness at a proposed location, an alternate location was selected by CH2M and EPA staff in the field based on sediment thickness observations from adjacent sample locations as outlined in the field sampling plan (FSP) (CH2M 2015a) and quality assurance project plan (QAPP) (CH2M 2015b). Sediment probing consisted of manually advancing a 0.75-inch outer-diameter steel rod until refusal, and recording the depth to refusal measurement to the nearest 0.1 foot. The sediment thickness was calculated by subtracting the water depth from the total probe depth. Water depth was measured using a surveyor's tape outfitted with an 8-pound bell anchor per the U.S. Army Corps of Engineers (USACE) guidance document (USACE 2013) and recorded to the nearest 0.1 foot. Water surface elevation data were recorded at the National Oceanic and Atmospheric Administration (NOAA) water level station ID 9087057 located in Milwaukee, Wisconsin. The water elevation data recorded during the sampling event were downloaded from NOAA's website (2015), and the water surface elevation from the time of core collection are reported as the water surface elevation at each location. The water surface elevations and water depth measurements were used to calculate the sediment surface elevation.

All locations were probed and sampled at the locations proposed in the field sampling plan (CH2M 2015a) except for KKMB-SD-001, which was shifted due to utilities present in the area and lack of soft sediment.

Sediment Sampling

Sediment was collected at a total of 14 locations established by EPA Great Lakes National Program Office and the Wisconsin Department of Natural Resources (WDNR). Sediment samples were collected using vibracore equipment at 13 locations, while one location (KKMB-SD-001) was collected with a ponar sampler due to dense sediment and adjacent subsurface utilities, as described in the deviations below.

Sediment samples were collected from an average of seven intervals per vibracore location at intervals of 0 to 0.5 foot below the sediment surface, and then continuously in 1-foot intervals. If native clay material was recovered, it was segregated into its own interval per the FSP.

Sediment samples for toxicity testing were collected to represent the surface sediment (depth interval of 0 to 0.5 foot collected with ponar sampler) and the subsurface sediment (depth interval greater than 0.5 foot collected with vibracore equipment). Samples for toxicity testing were collected from locations KKMB-SD-010, KKMB-SD-012, and KKMB-SD-014. Toxicity samples were packaged and relinquished to the Wisconsin State Laboratory of Hygiene in Madison, Wisconsin, for analysis on behalf of WDNR.

No deviations to the field procedures associated with the collection of the sediment samples were implemented during the field effort. However, minor deviations associated with the water elevation determination, quantity of samples, and method of collection were conducted based on field conditions. The following is a summary of the deviations:

- Staff gauges installed as part of the Solvay Site investigation activities were planned to be used during this investigation. CH2M contacted the entity that had installed the staff gauges and inquired on their condition prior to field activities; however, at the time of field activities, none of the staff gauges could be located. As an alternative, the NOAA staff gauge in Milwaukee harbor was used to determine the water elevation at the time of sample collection.
- The originally estimated number of samples was 70, plus quality assurance (QA)/quality control (QC) samples; however, due to thicker-than-anticipated sediments, a total of 96, plus QA/QC samples were collected at the proposed locations as previously described.
- Location KKMB-SD-001 was collected as a ponar grab sample at an alternative location approximately 50 feet southeast from the proposed location, due to the presence of utilities and dense sediment near the surface identified during probing.

Analytical Laboratory Data

Samples were collected and shipped to Eurofins Lancaster Laboratory Environmental, Inc. (Eurofins) in Lancaster, Pennsylvania, for analysis. QA/QC samples were collected as described in the FSP and DQOs (CH2M 2015a and 2015b). QA/QC samples included field duplicates, matrix spikes (MSs)/matrix spike duplicates (MSDs), and an equipment blank sample. Field duplicate samples were collected at a frequency of at least 10 percent, and MS/MSD samples were collected at a frequency of at least 5 percent in sediment samples, with the exception of polychlorinated biphenyls (PCBs). For PCBs, field duplicates were collected at a frequency of 8.7 percent and MS/MSDs at 4.3 percent.

- Ninety-six sediment samples, 10 field duplicate samples, and 5 aliquots for laboratory MS/MSDs were analyzed for total metals, total cyanide, polycyclic aromatic hydrocarbons (PAHs), alkylated PAHs, acid volatile sulfide (AVS)/simultaneously extracted metals (SEM), and total organic carbon.
- Of these, 23 samples, 2 field duplicates, and 1 aliquot for laboratory MS/MSDs were also analyzed for PCB Aroclors.
- One equipment blank sample was collected and analyzed for total metals, total cyanide, PAHs, and PCBs.
- An investigation-derived waste sample was collected and analyzed for waste characterization parameters. The results of this sample were used to characterize waste for disposal. The waste data were not validated and are not included in this memorandum.

Analytical method information is presented in Table 1.

Table 1. Analytical Method Information
Kinnickinnic River Mooring Basin

Analyte Class	Matrix	Method Citations	Laboratory Assignment
Total Metals	Sediment	SW-846 6010C/6020A/7471B	Eurofins
Total Cyanide	Sediment	SW-846 9012	Eurofins
PAHs	Sediment	SW-846 8270D SIM	Eurofins
Alkylated PAHs	Sediment	SW-846 8270D SIM	Eurofins
AVS/SEM	Sediment	EPA 821-R-91-100/SW-846 6010C	Eurofins
Total Organic Carbon	Sediment	Lloyd Kahn	Eurofins
PCBs	Sediment	SW-846 8082A	Eurofins

The sample delivery groups (SDGs) and sample identifications (IDs) are presented in Table 2.

Table 2. Sample Summary
Kinnickinnic River Mooring Basin

SDG	AVS/SEM SDG	Sample ID	SDG	AVS/SEM SDG	Sample ID
KIN01-1560856	KIN02-1560869	SD-006-0.0/0.5	KIN06-1561814	KIN09-1561817	SD-013-0.0/0.5
KIN01-1560856	KIN02-1560869	SD-006-0.5/1.5	KIN06-1561814	KIN09-1561817	SD-013-0.5/1.5
KIN01-1560856	KIN02-1560869	SD-006-1.5/2.5	KIN06-1561814	KIN09-1561817	SD-013-1.5/2.5
KIN01-1560856	KIN02-1560869	SD-006-1.5/2.5-FD	KIN06-1561814	KIN09-1561817	SD-013-2.5/3.5
KIN01-1560856	KIN02-1560869	SD-006-2.5/3.5	KIN06-1561814	KIN09-1561817	SD-013-3.5/4.5
KIN01-1560856	KIN02-1560869	SD-006-3.5/4.5	KIN06-1561814	KIN09-1561817	SD-013-4.5/5.5
KIN01-1560856	KIN02-1560869	SD-006-4.5/5.5	KIN06-1561814	KIN09-1561817	SD-013-5.5/6.5

Table 2. Sample Summary
Kinnickinnic River Mooring Basin

SDG	AVS/SEM SDG	Sample ID	SDG	AVS/SEM SDG	Sample ID
KIN01-1560856	KIN02-1560869	SD-006-5.5/6.5	KIN06-1561814	KIN09-1561817	SD-013-6.5/7.5
KIN01-1560856	KIN02-1560869	SD-006-6.5/7.5	KIN06-1561814	KIN09-1561817	SD-013-7.5/8.5
KIN01-1560856	KIN02-1560869	SD-006-7.5/8.0	KIN06-1561814	KIN09-1561817	SD-013-7.5/8.5-FD
KIN01-1560856	KIN02-1560869	SD-007-0.0/0.5	KIN07-1561815	KIN10-1561818	SD-001-0.0/0.5
KIN01-1560856	KIN02-1560869	SD-007-0.5/1.5	KIN07-1561815	KIN10-1561818	SD-002-0.0/0.5
KIN01-1560856	KIN02-1560869	SD-007-1.5/2.5	KIN07-1561815	KIN10-1561818	SD-002-0.5/1.5
KIN01-1560856	KIN02-1560869	SD-007-2.5/3.5	KIN07-1561815	KIN10-1561818	SD-002-1.5/2.5
KIN01-1560856	KIN02-1560869	SD-007-3.5/4.0	KIN07-1561815	KIN10-1561818	SD-002-1.5/2.5-FD
KIN01-1560856	KIN02-1560869	SD-008-0.0/0.5	KIN07-1561815	KIN10-1561818	SD-002-2.5/3.9
KIN01-1560856	KIN02-1560869	SD-008-0.5/1.5	KIN07-1561815	KIN10-1561818	SD-002-2.5/3.9-FD
KIN01-1560856	KIN02-1560869	SD-008-0.5/1.5-FD	KIN07-1561815	KIN10-1561818	SD-003-0.0/0.5
KIN01-1560856	KIN02-1560869	SD-008-1.5/2.5	KIN07-1561815	KIN10-1561818	SD-003-0.5/1.5
KIN01-1560856	KIN02-1560869	SD-008-2.5/3.5	KIN07-1561815	KIN10-1561818	SD-003-1.5/2.5
KIN01-1560856	KIN02-1560869	SD-008-3.5/4.6	KIN07-1561815	KIN10-1561818	SD-003-2.5/3.5
KIN01-1560856	KIN02-1560869	SD-008-4.6/5.3	KIN07-1561815	KIN10-1561818	SD-003-3.5/4.5
KIN03-1561295	KIN04-1561303	SD-005-0.0/0.5	KIN07-1561815	KIN10-1561818	SD-003-4.5/5.6
KIN03-1561295	KIN04-1561303	SD-005-0.5/1.5	KIN07-1561815	KIN10-1561818	SD-003-5.6/5.9
KIN03-1561295	KIN04-1561303	SD-005-1.5/2.5	KIN07-1561815	KIN10-1561818	SD-013-10.5/11.5
KIN03-1561295	KIN04-1561303	SD-005-2.5/3.5	KIN07-1561815	KIN10-1561818	SD-013-11.5/13.0
KIN03-1561295	KIN04-1561303	SD-005-3.5/4.5	KIN07-1561815	KIN10-1561818	SD-013-8.5/9.5
KIN03-1561295	KIN04-1561303	SD-005-4.5/5.5	KIN07-1561815	KIN10-1561818	SD-013-9.5/10.5
KIN03-1561295	KIN04-1561303	SD-005-5.5/6.4	KIN11-1562097	-	EB-001
KIN03-1561295	KIN04-1561303	SD-009-0.0/0.5	KIN11-1562097	KIN12-1562105	SD-010-0.0/0.5
KIN03-1561295	KIN04-1561303	SD-009-0.5/1.5	KIN11-1562097	KIN12-1562105	SD-010-0.5/1.5
KIN03-1561295	KIN04-1561303	SD-009-1.5/2.5	KIN11-1562097	KIN12-1562105	SD-010-1.5/2.5
KIN03-1561295	KIN04-1561303	SD-009-1.5/2.5-FD	KIN11-1562097	KIN12-1562105	SD-010-1.5/2.5-FD
KIN03-1561295	KIN04-1561303	SD-009-10.5/11.8	KIN11-1562097	KIN12-1562105	SD-010-2.5/3.5
KIN03-1561295	KIN04-1561303	SD-009-2.5/3.5	KIN11-1562097	KIN12-1562105	SD-010-3.5/5.0
KIN03-1561295	KIN04-1561303	SD-009-3.5/4.5	KIN13-1562111	KIN14-1562116	SD-012-0.0/0.5
KIN03-1561295	KIN04-1561303	SD-009-4.5/5.5	KIN13-1562111	KIN14-1562116	SD-012-0.5/1.5
KIN03-1561295	KIN04-1561303	SD-009-5.5/6.5	KIN13-1562111	KIN14-1562116	SD-012-1.5/2.5
KIN03-1561295	KIN04-1561303	SD-009-6.5/7.5	KIN13-1562111	KIN14-1562116	SD-012-1.5/2.5-FD

Table 2. Sample Summary
Kinnickinnic River Mooring Basin

SDG	AVS/SEM SDG	Sample ID	SDG	AVS/SEM SDG	Sample ID
KIN03-1561295	KIN04-1561303	SD-009-7.5/8.5	KIN13-1562111	KIN14-1562116	SD-012-10.5/12.2
KIN03-1561295	KIN04-1561303	SD-009-8.5/9.5	KIN13-1562111	KIN14-1562116	SD-012-2.5/3.5
KIN03-1561295	KIN04-1561303	SD-009-9.5/10.5	KIN13-1562111	KIN14-1562116	SD-012-3.5/4.5
KIN05-1561813	KIN08-1561816	SD-004-0.0/0.5	KIN13-1562111	KIN14-1562116	SD-012-4.5/5.5
KIN05-1561813	KIN08-1561816	SD-004-0.5/1.5	KIN13-1562111	KIN14-1562116	SD-012-5.5/6.5
KIN05-1561813	KIN08-1561816	SD-004-1.5/2.3	KIN13-1562111	KIN14-1562116	SD-012-6.5/7.5
KIN05-1561813	KIN08-1561816	SD-004-1.5/2.3-FD	KIN13-1562111	KIN14-1562116	SD-012-7.5/8.5
KIN05-1561813	KIN08-1561816	SD-004B-0.5/1.5	KIN13-1562111	KIN14-1562116	SD-012-8.5/9.5
KIN05-1561813	KIN08-1561816	SD-004B-1.5/3.8	KIN13-1562111	KIN14-1562116	SD-012-9.5/10.5
KIN05-1561813	KIN08-1561816	SD-011-0.0/0.5	KIN15-1562118	KIN16-1562120	TX-010-0.0/0.5
KIN05-1561813	KIN08-1561816	SD-011-0.5/1.5	KIN15-1562118	KIN16-1562120	TX-012-0.0/0.5
KIN05-1561813	KIN08-1561816	SD-011-0.5/1.5-FD	KIN15-1562118	KIN16-1562120	TX-012-0.5/5.0
KIN05-1561813	KIN08-1561816	SD-011-1.5/2.5	KIN15-1562118	KIN16-1562120	TX-014-0.0/0.5
KIN05-1561813	KIN08-1561816	SD-011-2.5/3.1	KIN15-1562118	KIN16-1562120	TX-014-0.5/5.0
KIN05-1561813	KIN08-1561816	SD-011-3.1/4.0	-	-	-

EB = equipment blank; FD = field duplicate; SD = sediment sample; TX = toxicity sediment sample

One-hundred percent of the site characterization data were reviewed, verified, and validated by CH2M following the Stage 2a validation level, and 20 percent at Stage 2b, according to the *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (EPA 2009).

Stage 2a includes verification that samples were analyzed for the methods requested, review of the laboratory case narrative, and the accuracy, precision, completeness, and compliance of sample-related QC. Stage 2b includes all of the items in Stage 2a validation, plus completeness and compliance of instrument QC. Four SDGs (KIN06-1561814, KIN09-1561817, KIN13-1562111, and KIN14-1562216) were selected for the Stage 2b validation.

Validation was performed manually in accordance with the QAPP and patterned after the EPA National Functional Guidelines flagging protocol (EPA 2008, 2010). The QC requirements specified in the QAPP, individual analytical method requirements, and laboratory standard operating procedures were referenced during the review of the data set. Data were qualified according to the measurement quality objectives specified in the QAPP for each parameter.

Data qualifiers were applied to sample results when the QC statistics indicated a possible bias to specific compounds or analytes associated with a particular method and sample batch. Multiple qualifiers are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final qualifier. A final qualifier is applied to the data and is the most conservative of the applied validation qualifiers. Standard data qualifiers were used as a means of classifying the data with regard to their conformance to QC requirements. The applied data qualifiers are defined as follows:

Qualifier	Definition
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.
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.
R	The sample result was rejected because of serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence of absence of the analyte could not be verified.

In some cases, multiple runs were reported for PAHs and PCBs due to dilutions and/or re-extractions. Validation protocol and professional judgment were used by the validator to determine the most representative result for final reporting.

Samples that contained analytes exceeding the calibration range were diluted and reanalyzed by the laboratory. The result from the lowest dilution not exceeding the calibration range should be used for making project decisions.

Findings

The QA/QC results were within project control limits, except where noted in the following subsections. Table 3 (located at the end of this document) lists changes in data qualifiers based upon the validation process, not including those that were excluded due to dilutions or reanalysis.

Holding Time

The holding times were evaluated to verify that samples were extracted and analyzed within holding times. Four samples required re-extraction, which was performed outside of the preparation holding-time criteria for PAHs. There were 120 associated detected results and 4 nondetected results from samples extracted outside of holding time. Associated results were qualified as estimated “J” or “UJ”.

Due to low recoveries of spiked compounds for AVS/SEM analysis, CH2M directed the laboratory to reanalyze the samples outside of holding time. Unless otherwise noted below, the reanalyzed AVS/SEM samples had acceptable recoveries, and results were reported without qualification for holding time exceedances.

Surrogate Recovery

Surrogates were added as required and, generally, all acceptable criteria were met. When surrogate recoveries were low, the associated compounds were qualified and estimated “J” or “UJ”. When recoveries were high, associated detected compounds were qualified as estimated “J”, and nondetects were not qualified.

Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required and were generally acceptable. Pyrene recovered below the lower control limit in one LCS. Pyrene in the associated samples was reported as detected and qualified as estimated “J”.

Matrix Spike and Matrix Spike Duplicates

MS/MSD samples were performed as required. The majority of recoveries were within established control limits. When recoveries were low, the MS/MSD parent sample result was qualified and estimated “J” or “UJ”. When recoveries or relative percent difference (RPD) were high, MS/MSD parent sample detected results were qualified as estimated "J", nondetects were not qualified. In cases where the recoveries or RPD were outside of criteria, but the parent sample concentration was greater than 4 times the spiking level, the results were not qualified.

For this data set, all nondetect mercury results were rejected, "R", due to MS/MSD recoveries of 0 percent in all samples selected for MS/MSD. All five MS/MSDs had 0 percent recovery, indicating a significant matrix issue; therefore, professional judgement was used, and all results were qualified rejected due to the fact that the laboratory cannot recovery any amount of spiked mercury in the samples.

Method Blank

Method blanks were analyzed at the required frequency. When detects were reported in the blank samples, detected results in the associated field samples that were less than 5 times the blank concentration were qualified as estimated "U", and the result was elevated to the quantitation limit. Nondetects were not qualified.

Equipment Blank

In accordance with the FSP and DQOs, an equipment blank sample was collected for nondisposable sampling equipment. One equipment blank sample was collected by pouring deionized water over the decontaminated ponar dredge sampler. The equipment blank was free from contamination, with the exception of four metals that were reported as detected. Associated sample concentrations were greater than 5 times the blank concentration (converted to soil units) and were not qualified.

Continuing Calibration Blank

Calibration blanks were analyzed at the required frequency. When detects were reported in the calibration blank samples, detected results in the associated field samples that were less than 5 times the blank concentration were qualified as estimated "U", and the result was elevated to the quantitation limit. Nondetects were not qualified.

For metals samples, when the continuing calibration blank was less than the negative detection limit and greater than the negative quantitation limit, results were not qualified.

Laboratory Duplicate Samples

Laboratory duplicate samples were performed by the laboratory to determine instrument and method precision. When the RPD between the parent sample and the duplicate sample exceeded method criteria, the detected results were qualified as estimated "J".

Field Duplicate Samples

Field duplicate samples were collected to measure heterogeneity of the sample matrix, analytical precision, and representativeness. Field duplicate pairs were collected at the same time as the parent sample and analyzed for the same parameters. In accordance with the FSP and DQOs, when the RPD between the parent sample and the field duplicate sample exceeded 100 percent, and the sample values were greater than or equal to 5 times the reporting limit, the results were qualified as estimated "J" in the field duplicate pair. Nondetected results were qualified as estimated "UJ" if one sample result in the field duplicate pair was reported above the reporting limit.

Continuing Calibration Verification

The majority of calibration criteria was met. The percent difference was less than or equal to negative 25 percent for semivolatile organic compound pyrene in two continuing calibration verifications. Associated samples are qualified "J" or "UJ". Pyrene was reported as detected in the associated samples, and results were qualified as estimated "J".

Sample Confirmation

Second-column confirmation was performed for PCB Aroclors. When the percent difference exceeded criteria, the results were qualified as estimated “J” in the parent sample.

Serial Dilution

Serial dilutions were performed as required for metals analyses to determine whether significant physical or chemical interferences exist due to sample matrix. When the percent difference between the parent sample and the serial dilution exceeded 10 percent, and the sample concentration exceeded 50 times the detection limit, the results were qualified as estimated “J”.

Sample Evaluation

If an analyte exceeded the calibration range in the initial sample and was not detected in the diluted sample, or the sample was not analyzed at a higher dilution, the analyte in the initial sample was qualified and flagged “J” as estimated in quantity. In sample SD-008-3.5/4.6, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, chrysene, fluoranthene, and pyrene results are qualified as estimated “J” for exceeding the calibration range of the instrument.

Independent Validation

The sediment data set was submitted to EPA’s Quality Assurance Technical Support contractor, CB&I Federal Services LLC (CB&I) for an independent review of completeness and to verify that the data validation had been conducted in accordance with the National Functional Guidelines and QAPP. The objective of the independent review was to assess the accuracy and precision of the method and the matrix using the appropriate criteria. CB&I completed a Tier 2 validation after initial validation by CH2M. The results of the CB&I validation review are summarized in the release of validated data report provided in Attachment 2.

CH2M reviewed the CB&I validation report and found when multiple runs for PAH analysis were reported by the laboratory due to re-extractions, in some cases, the CB&I validators selected different results for final reporting. The selection of a different final value impacted a limited number of individual results (PAH results for 13 native samples). The CB&I results were not incorporated into the data summaries of the site characterization report. However, the CB&I results have been incorporated in the final electronic data set provided to the Great Lakes National Program Office for entry into the Great Lakes Sediment Database.

Conclusions

The goal of the data assessment is to determine if deviations from the FSP and QAPP affect the usability of the field data and the analytical results, and whether the field and laboratory data can be used to support the decision making process. The following summary highlights the data evaluation findings:

1. The staff gauges installed by ARCADIS in 2012 as part of the Solvay Site investigation activities were planned to be used during this investigation; however, at the time of field activities, none of them could be located. As an alternative, the NOAA staff gauge in Milwaukee harbor was used to determine the water elevation at the time of sample collection. This will not adversely affect the data usability.
2. The increased number of samples were collected due to greater sediment thicknesses than anticipated. The increased number of samples provides a more representative distribution of sampling data where sediment was present, and will not adversely affect the data usability.
3. The coordinates that were collected during core collection are submeter accurate.

4. The sediment sampling methods were modified at location KKMB-SD-001 based on the presence of utilities and the substrate type (no soft sediment); therefore, a ponar was used based on consultation with and approval by EPA, and will not adversely affect the data usability.
5. Although field duplicate and MS/MSD QC samples were collected slightly below the frequencies identified in the FSP and DQOs for PCBs, the accuracy and precision indicated good data quality.
6. The precision and accuracy of the data, as measured by field and laboratory QC indicators, indicate that the data quality objectives were met for all parameters, except AVS/SEM mercury. The AVS/SEM mercury data were rejected and should not be used to make project decisions.
7. The completeness objective of 90 percent was met for all method/analyte combinations, with the exception of AVS/SEM mercury.

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Table 3. Sample Summary

Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-001-0.0/0.5	KIN10	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	1-Methylnaphthalene	1000	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	2-Methylnaphthalene	1800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthene	1000	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthylene	2100	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Anthracene	4700	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)anthracene	8800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)pyrene	7000	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Benzo(b)fluoranthene	5800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Benzo(e)pyrene	4600	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Benzo(g,h,i)perylene	3500	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Benzo(k)fluoranthene	7200	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C1-Benzanthrene/chrysenes	6600	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluoranthenes/Pyrenes	14000	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluorenes	1800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C1-Naphthalenes	1700	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C1-Phenanthrenes/anthracenes	7500	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C2-Benzanthrene/chrysenes	3100	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluoranthenes/Pyrenes	5800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluorenes	1700	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C2-Naphthalenes	2300	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C2-Phenanthrenes/anthracenes	7500	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C3-Benzanthrene/chrysenes	1800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluoranthenes/Pyrenes	2800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluorenes	2100	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C3-Naphthalenes	3700	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C3-Phenanthrenes/anthracenes	5000	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C4-Benzanthrene/chrysenes	660	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C4-Naphthalenes	2600	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	C4-Phenanthrenes/anthracenes	2300	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Chrysene	8800	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Dibenzo(a,h)anthracene	1300	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Fluoranthene	16000	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Fluorene	2600	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Indeno(1,2,3-Cd)Pyrene	4400	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Naphthalene	9100	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Perylene	1600	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Phenanthrene	8500	µg/kg	J	SSH
SD-002-0.0/0.5	KIN07	SW8270DSIM	DILUTION1	Pyrene	11000	µg/kg	J	SSH
SD-002-0.0/0.5	KIN10	SW7471B	INITIAL	Mercury	0.000151	µmol/g	R	MSL
SD-002-0.5/1.5	KIN10	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-002-1.5/2.5	KIN10	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-002-1.5/2.5-FD	KIN10	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-002-2.5/3.9	KIN10	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	1-Methylnaphthalene	550	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	2-Methylnaphthalene	1200	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Acenaphthene	780	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Acenaphthylene	1000	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Anthracene	2300	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Benzo(a)anthracene	4500	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Benzo(a)pyrene	3500	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Benzo(b)fluoranthene	3300	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Benzo(e)pyrene	2200	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Benzo(g,h,i)perylene	1700	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Benzo(k)fluoranthene	3300	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C1-Benzanthrene/chrysenes	2700	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C1-Fluoranthenes/Pyrenes	6400	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C1-Fluorenes	1100	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C1-Naphthalenes	1100	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C1-Phenanthrenes/anthracenes	3800	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C2-Benzanthrene/chrysenes	1400	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C2-Fluoranthenes/Pyrenes	2500	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C2-Fluorenes	770	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C2-Naphthalenes	1200	µg/kg	J	SSH

Table 3. Sample Summary
Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C2-Phenanthrenes/anthracenes	3400	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C3-Benzanthrene/chrysenes	900	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C3-Fluoranthenes/Pyrenes	1400	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C3-Fluorenes	980	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C3-Naphthalenes	1500	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C3-Phenanthrenes/anthracenes	2400	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C4-Benzanthrene/chrysenes	320	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C4-Naphthalenes	1100	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	C4-Phenanthrenes/anthracenes	1300	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Chrysene	4400	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Dibenzo(a,h)anthracene	690	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Fluoranthene	8900	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Fluorene	1500	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Indeno(1,2,3-Cd)Pyrene	2200	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Naphthalene	7200	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Perylene	810	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Phenanthrene	5500	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN07	SW8270DSIM	DILUTION1	Pyrene	5900	µg/kg	J	SSH
SD-002-2.5/3.9-FD	KIN10	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-003-0.0/0.5	KIN10	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	1-Methylnaphthalene	93	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	2-Methylnaphthalene	160	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Acenaphthene	130	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Acenaphthylene	260	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Anthracene	400	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Benzo(a)anthracene	1200	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Benzo(a)pyrene	1000	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	1000	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Benzo(e)pyrene	660	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	510	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	900	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	690	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1600	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C1-Fluorenes	200	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C1-Naphthalenes	160	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	720	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	350	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	660	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C2-Fluorenes	170	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C2-Naphthalenes	180	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	850	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	220	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	340	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C3-Fluorenes	220	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C3-Naphthalenes	260	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	600	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	78	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C4-Naphthalenes	210	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	330	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Chrysene	1200	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	190	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Fluoranthene	2000	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Fluorene	230	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	670	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Naphthalene	790	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Perylene	230	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Phenanthrene	750	µg/kg	J	SSL
SD-003-0.5/1.5	KIN07	SW8270DSIM	INITIAL	Pyrene	1200	µg/kg	J	SSL
SD-003-0.5/1.5	KIN10	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-003-1.5/2.5	KIN10	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-003-2.5/3.5	KIN10	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-003-3.5/4.5	KIN07	SW8270DSIM	DILUTION1	Fluoranthene	8800	µg/kg	J	SSL
SD-003-3.5/4.5	KIN07	SW8270DSIM	DILUTION1	Naphthalene	6200	µg/kg	J	SSL
SD-003-3.5/4.5	KIN10	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-003-4.5/5.6	KIN07	SW8270DSIM	DILUTION1	Benzo(a)anthracene	7700	µg/kg	J	SSH
SD-003-4.5/5.6	KIN07	SW8270DSIM	DILUTION1	Chrysene	7200	µg/kg	J	SSH
SD-003-4.5/5.6	KIN07	SW8270DSIM	DILUTION1	Fluoranthene	17000	µg/kg	J	SSH
SD-003-4.5/5.6	KIN07	SW8270DSIM	DILUTION1	Naphthalene	7700	µg/kg	J	SSH
SD-003-4.5/5.6	KIN07	SW8270DSIM	DILUTION1	Phenanthrene	7400	µg/kg	J	SSH
SD-003-4.5/5.6	KIN07	SW8270DSIM	DILUTION1	Pyrene	12000	µg/kg	J	SSH
SD-003-4.5/5.6	KIN10	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-003-5.6/5.9	KIN10	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	12	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	17	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Acenaphthene	16	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	11	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Anthracene	37	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	55	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	63	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	74	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	55	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	52	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	58	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	55	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	91	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	14	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	18	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	93	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	39	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	57	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	24	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	39	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	87	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	18	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	42	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	29	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	85	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	60	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	76	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	32	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Chrysene	74	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	13	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Fluoranthene	140	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Fluorene	23	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	59	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Naphthalene	66	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Perylene	16	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Phenanthrene	97	µg/kg	J	SSL
SD-004-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Pyrene	91	µg/kg	J	SSL
SD-004-0.0/0.5	KIN08	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1016	0.017	mg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1221	0.017	mg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1232	0.017	mg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1242	0.017	mg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1248	0.027	mg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1254	0.015	mg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1260	0.017	mg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1262	0.017	mg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8082A	INITIAL	Aroclor 1268	0.017	mg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	8.3	µg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	7.5	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Acenaphthene	8.3	µg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	6.2	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Anthracene	11	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	41	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	52	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	56	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	43	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	46	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	55	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	26	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	47	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	8.3	µg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	7.3	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	17	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	13	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	23	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	8.3	µg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	7.7	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	17	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	11	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	9.1	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	11	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	15	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	8.7	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.3	µg/kg	UJ	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Chrysene	53	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	11	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Fluoranthene	90	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Fluorene	8	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	53	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Naphthalene	40	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Perylene	21	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Phenanthrene	36	µg/kg	J	SSL
SD-004-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Pyrene	68	µg/kg	J	SSL
SD-004-0.5/1.5	KIN08	E821-R-91-100	INITIAL	Acid Volatile Sulfide	2	µmol/g	UJ	MSL
SD-004-0.5/1.5	KIN08	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Acenaphthene	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Anthracene	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	1.7	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	2.2	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	2.4	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	1.7	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	1.9	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	1.8	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	1.8	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	2.8	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	1.1	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	1.6	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	1.3	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	2.2	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	2.3	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Chrysene	2.6	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Fluoranthene	4	µg/kg	J	SSL

Table 3. Sample Summary
Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Fluorene	1.7	µg/kg	UJ	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	2	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Naphthalene	2.3	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Perylene	17	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Phenanthrene	2.2	µg/kg	J	SSL
SD-004-1.5/2.3	KIN05	SW8270DSIM	INITIAL	Pyrene	2.9	µg/kg	J	SSL
SD-004-1.5/2.3	KIN08	SW6010C	INITIAL	Lead	0.0404	µmol/g	J	MSL
SD-004-1.5/2.3	KIN08	SW6010C	INITIAL	Nickel	0.0789	µmol/g	J	SDIL
SD-004-1.5/2.3	KIN08	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Acenaphthene	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Anthracene	5.9	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	19	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	23	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	26	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	19	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	18	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	22	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	14	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	22	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	9.7	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	7.6	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	11	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	10	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	7.5	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	6.8	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	7.9	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	6	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Chrysene	27	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Fluoranthene	42	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Fluorene	8.2	µg/kg	UJ	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	20	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Naphthalene	19	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Perylene	22	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Phenanthrene	20	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN05	SW8270DSIM	INITIAL	Pyrene	30	µg/kg	J	SSL
SD-004-1.5/2.3-FD	KIN08	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Acenaphthene	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Anthracene	1.5	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	5.2	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	5.8	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	6.7	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	4.4	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	4.7	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	5.2	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	3.4	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	6.4	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	2.8	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	3	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	3.5	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	2.1	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	3.8	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	3	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Chrysene	7	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	1.7	µg/kg	UJ	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Fluoranthene	13	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Fluorene	1.2	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	5.4	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Naphthalene	2.7	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Perylene	17	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Phenanthrene	5.3	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Pyrene	8.9	µg/kg	J	SSL
SD-004B-0.5/1.5	KIN08	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	5	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	8.1	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Acenaphthene	2.4	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Anthracene	3.3	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	1.3	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	1.6	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	3.1	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	1.2	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	1.5	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	3.1	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1.7	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	8.3	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	1.5	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	3.3	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	1.9	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	2	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Chrysene	1.3	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Fluoranthene	2.5	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Fluorene	1.7	µg/kg	UJ	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	1.5	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Naphthalene	40	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Perylene	20	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Phenanthrene	3.3	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN05	SW8270DSIM	INITIAL	Pyrene	2.1	µg/kg	J	SSL
SD-004B-1.5/3.8	KIN08	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-005-0.0/0.5	KIN04	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-005-0.5/1.5	KIN04	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL

Table 3. Sample Summary
Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	93	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	180	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	85	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	160	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Anthracene	310	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	850	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	780	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	840	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	580	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	520	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	640	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	690	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1500	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	190	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	180	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	530	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	330	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	730	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	150	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	300	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	740	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	190	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	360	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	190	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	380	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	590	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	87	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	330	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	300	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Chrysene	920	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	160	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	1600	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Fluorene	210	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	620	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	750	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Perylene	180	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	650	µg/kg	J	SSH
SD-005-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Pyrene	990	µg/kg	J	SSH
SD-005-1.5/2.5	KIN04	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	9	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	18	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	14	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	24	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Anthracene	37	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	100	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	99	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	100	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	73	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	73	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	85	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	78	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	150	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	20	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	17	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	68	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	38	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	78	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	19	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	31	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	77	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	19	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	39	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	25	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	45	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	58	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.2	µg/kg	UJ	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	39	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	31	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Chrysene	120	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	22	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	200	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Fluorene	17	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	80	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	83	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Perylene	24	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	80	µg/kg	J	SSL
SD-005-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Pyrene	120	µg/kg	J	SSL
SD-005-2.5/3.5	KIN04	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	5.6	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	11	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	6.5	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	13	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Anthracene	20	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	54	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	50	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	47	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	39	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	32	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	52	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	44	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	85	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	14	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	11	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	39	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	23	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	49	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	14	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	17	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	49	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	12	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	26	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	19	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	29	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	38	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	31	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Chrysene	61	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	9.4	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	110	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Fluorene	12	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	38	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	41	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Perylene	17	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	42	µg/kg	J	SSH
SD-005-3.5/4.5	KIN03	SW8270DSIM	INITIAL	Pyrene	69	µg/kg	J	SSH
SD-005-3.5/4.5	KIN04	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	6.4	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	12	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	9	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Anthracene	13	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	32	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	31	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	30	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	25	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	25	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	30	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	26	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	49	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	7	µg/kg	J	SSH

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	12	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	27	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	13	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	27	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	7.7	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	14	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	31	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	7.3	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	16	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	11	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	21	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	23	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	20	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Chrysene	37	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	6.8	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	69	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Fluorene	8.1	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	29	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	38	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Perylene	14	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	32	µg/kg	J	SSH
SD-005-4.5/5.5	KIN03	SW8270DSIM	INITIAL	Pyrene	42	µg/kg	J	SSH
SD-005-4.5/5.5	KIN04	SW6010C	INITIAL	Cadmium	0.00308	µmol/g	U	LBH
SD-005-4.5/5.5	KIN04	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-005-5.5/6.4	KIN03	SW6010C	INITIAL	Chromium	55.5	mg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW6010C	INITIAL	Lead	20.2	mg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW6010C	INITIAL	Zinc	118	mg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW6020A	INITIAL	Beryllium	0.344	mg/kg	J	MSH
SD-005-5.5/6.4	KIN03	SW7471B	INITIAL	Mercury	0.0701	mg/kg	J	MSH
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	15	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	25	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Acenaphthene	8.3	µg/kg	UJ	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	15	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Anthracene	16	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	41	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	45	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	35	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	32	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	33	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	42	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	32	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	69	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	9.9	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	26	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	38	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	17	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	34	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	10	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	22	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	33	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	8.3	µg/kg	UJ	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	16	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	16	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	25	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	20	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	16	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.3	µg/kg	UJ	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Chrysene	48	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	9.9	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Fluoranthene	92	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Fluorene	14	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	37	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Naphthalene	82	µg/kg	J	MSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Perylene	17	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Phenanthrene	56	µg/kg	J	MSL
SD-005-5.5/6.4	KIN03	SW8270DSIM	INITIAL	Pyrene	50	µg/kg	J	MSL
SD-005-5.5/6.4	KIN04	E821-R-91-100	INITIAL	Acid Volatile Sulfide	2	µmol/g	UJ	MSL
SD-005-5.5/6.4	KIN04	SW6010C	INITIAL	Cadmium	0.00141	µmol/g	J	MSL
SD-005-5.5/6.4	KIN04	SW6010C	INITIAL	Lead	0.0201	µmol/g	J	MSH
SD-005-5.5/6.4	KIN04	SW6010C	INITIAL	Silver	0.00227	µmol/g	UJ	MSL
SD-005-5.5/6.4	KIN04	SW6010C	INITIAL	Zinc	0.377	µmol/g	J	MSH
SD-005-5.5/6.4	KIN04	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-006-0.0/0.5	KIN01	SW6010C	INITIAL	Antimony	7.94	mg/kg	U	LBH
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	1-Methylnaphthalene	280	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	2-Methylnaphthalene	570	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthene	270	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthylene	460	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Anthracene	940	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)anthracene	2600	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)pyrene	2300	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(b)fluoranthene	4000	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(e)pyrene	1800	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(g,h,i)perylene	1900	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(k)fluoranthene	1000	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C1-Benzanthrene/chrysenes	2100	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluoranthenes/Pyrenes	3700	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluorenes	360	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C1-Naphthalenes	550	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C1-Phenanthrenes/anthracenes	2800	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C2-Benzanthrene/chrysenes	1400	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluoranthenes/Pyrenes	1700	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluorenes	520	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C2-Naphthalenes	780	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C2-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C3-Benzanthrene/chrysenes	690	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluoranthenes/Pyrenes	1100	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluorenes	1.7	µg/kg	UJ	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C3-Naphthalenes	1200	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C3-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C4-Benzanthrene/chrysenes	260	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C4-Naphthalenes	1100	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	C4-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Chrysene	2500	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Dibenzo(a,h)anthracene	840	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Fluoranthene	4500	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Fluorene	760	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Indeno(1,2,3-Cd)Pyrene	2300	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Naphthalene	2000	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Perylene	600	µg/kg	J	HTP
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Phenanthrene	2600	µg/kg	J	LR
SD-006-0.0/0.5	KIN01	SW8270DSIM	REANALYSIS	Pyrene	2600	µg/kg	J	LR
SD-006-0.0/0.5	KIN02	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-006-0.5/1.5	KIN01	SW6010C	INITIAL	Antimony	7.62	mg/kg	U	LBH
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	1-Methylnaphthalene	71	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	2-Methylnaphthalene	130	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthene	110	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthylene	85	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Anthracene	170	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)anthracene	460	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)pyrene	440	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(b)fluoranthene	490	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(e)pyrene	350	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(g,h,i)perylene	280	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(k)fluoranthene	420	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C1-Benzanthrene/chrysenes	360	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluoranthenes/Pyrenes	560	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluorenes	92	µg/kg	J	HTP

Table 3. Sample Summary
Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C1-Naphthalenes	130	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C1-Phenanthrenes/anthracenes	350	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C2-Benzanthrene/chrysenes	170	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluoranthenes/Pyrenes	280	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluorenes	100	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C2-Naphthalenes	250	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C2-Phenanthrenes/anthracenes	320	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C3-Benzanthrene/chrysenes	120	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluoranthenes/Pyrenes	180	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluorenes	150	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C3-Naphthalenes	340	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C3-Phenanthrenes/anthracenes	220	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C4-Benzanthrene/chrysenes	46	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C4-Naphthalenes	270	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	C4-Phenanthrenes/anthracenes	130	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Chrysene	540	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Dibenzo(a,h)anthracene	81	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Fluoranthene	860	µg/kg	J	LR
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Fluorene	130	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Indeno(1,2,3-Cd)Pyrene	340	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Naphthalene	410	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Perylene	170	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Phenanthrene	490	µg/kg	J	HTP
SD-006-0.5/1.5	KIN01	SW8270DSIM	REANALYSIS	Pyrene	610	µg/kg	J	HTP
SD-006-0.5/1.5	KIN02	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-006-1.5/2.5	KIN01	SW6010C	INITIAL	Antimony	7.38	mg/kg	U	LBH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	1-Methylnaphthalene	92	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	2-Methylnaphthalene	220	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	Acenaphthene	99	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	Acenaphthylene	230	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	Anthracene	440	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	1100	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	2400	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C1-Fluorenes	190	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C1-Naphthalenes	200	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	850	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	500	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	1100	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C2-Fluorenes	190	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C2-Naphthalenes	250	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	1200	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	250	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	620	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C3-Fluorenes	300	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C3-Naphthalenes	420	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	890	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	C4-Naphthalenes	450	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	320	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	Fluorene	160	µg/kg	J	SSH
SD-006-1.5/2.5	KIN01	SW8270DSIM	INITIAL	Perylene	330	µg/kg	J	SSH
SD-006-1.5/2.5	KIN02	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-006-1.5/2.5-FD	KIN01	SW6010C	INITIAL	Antimony	7.16	mg/kg	U	LBH
SD-006-1.5/2.5-FD	KIN02	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-006-2.5/3.5	KIN01	SW6010C	INITIAL	Antimony	7.41	mg/kg	U	LBH
SD-006-2.5/3.5	KIN02	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-006-3.5/4.5	KIN01	SW6010C	INITIAL	Antimony	6.61	mg/kg	U	LBH
SD-006-3.5/4.5	KIN02	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-006-4.5/5.5	KIN01	SW6010C	INITIAL	Antimony	7.08	mg/kg	U	LBH
SD-006-4.5/5.5	KIN02	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-006-5.5/6.5	KIN02	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-006-6.5/7.5	KIN01	SW6010C	INITIAL	Copper	20.7	mg/kg	J	LDP
SD-006-6.5/7.5	KIN01	SW6010C	INITIAL	Lead	38.4	mg/kg	J	MSH
SD-006-6.5/7.5	KIN01	SW7471B	INITIAL	Mercury	0.0755	mg/kg	J	MSH
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	1-Methylnaphthalene	84	µg/kg	J	HTP

Table 3. Sample Summary
Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	2-Methylnaphthalene	100	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthene	25	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthylene	24	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Anthracene	56	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)anthracene	170	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)pyrene	140	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(b)fluoranthene	200	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(e)pyrene	150	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(g,h,i)perylene	120	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(k)fluoranthene	120	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C1-Benzanthrene/chrysenes	330	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluoranthenes/Pyrenes	430	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluorenes	160	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C1-Naphthalenes	120	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C1-Phenanthrenes/anthracenes	730	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C2-Benzanthrene/chrysenes	230	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluoranthenes/Pyrenes	490	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluorenes	270	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C2-Naphthalenes	200	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C2-Phenanthrenes/anthracenes	630	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C3-Benzanthrene/chrysenes	130	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluoranthenes/Pyrenes	400	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluorenes	300	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C3-Naphthalenes	320	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C3-Phenanthrenes/anthracenes	300	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C4-Benzanthrene/chrysenes	59	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C4-Naphthalenes	150	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	C4-Phenanthrenes/anthracenes	150	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Chrysene	270	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Dibenzo(a,h)anthracene	48	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Fluoranthene	260	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Fluorene	51	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Indeno(1,2,3-Cd)Pyrene	110	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Naphthalene	140	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Perylene	55	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Phenanthrene	330	µg/kg	J	HTP
SD-006-6.5/7.5	KIN01	SW8270DSIM	REANALYSIS	Pyrene	150	µg/kg	J	HTP
SD-006-6.5/7.5	KIN02	E821-R-91-100	INITIAL	Acid Volatile Sulfide	3.2	µmol/g	J	MSDP
SD-006-6.5/7.5	KIN02	SW6010C	INITIAL	Cadmium	0.00243	µmol/g	J	MSL
SD-006-6.5/7.5	KIN02	SW6010C	INITIAL	Copper	0.229	µmol/g	J	MSL
SD-006-6.5/7.5	KIN02	SW6010C	INITIAL	Nickel	0.375	µmol/g	J	MSL
SD-006-6.5/7.5	KIN02	SW6010C	INITIAL	Silver	0.00222	µmol/g	UJ	MSL
SD-006-6.5/7.5	KIN02	SW6010C	INITIAL	Zinc	0.684	µmol/g	J-	MSL
SD-006-6.5/7.5	KIN02	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-006-7.5/8.0	KIN02	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-007-0.0/0.5	KIN01	SW6010C	INITIAL	Antimony	9.07	mg/kg	U	LBH
SD-007-0.0/0.5	KIN02	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-007-0.5/1.5	KIN02	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-007-1.5/2.5	KIN02	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-007-2.5/3.5	KIN01	SW6010C	INITIAL	Antimony	7.04	mg/kg	U	LBH
SD-007-2.5/3.5	KIN02	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-007-3.5/4.0	KIN02	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-008-0.0/0.5	KIN01	SW6010C	INITIAL	Antimony	8.83	mg/kg	U	LBH
SD-008-0.0/0.5	KIN02	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-008-0.5/1.5	KIN01	SW6010C	INITIAL	Antimony	7.5	mg/kg	U	LBH
SD-008-0.5/1.5	KIN02	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-008-0.5/1.5-FD	KIN01	SW6010C	INITIAL	Antimony	7.9	mg/kg	U	LBH
SD-008-0.5/1.5-FD	KIN02	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-008-1.5/2.5	KIN01	SW6010C	INITIAL	Antimony	7.19	mg/kg	U	LBH
SD-008-1.5/2.5	KIN01	SW8270DSIM	DILUTION1	Fluoranthene	640	µg/kg	J	SSL
SD-008-1.5/2.5	KIN02	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-008-2.5/3.5	KIN01	SW6010C	INITIAL	Antimony	7.03	mg/kg	U	LBH
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	1-Methylnaphthalene	200	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	2-Methylnaphthalene	420	µg/kg	J	HTP

Table 3. Sample Summary

Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthene	160	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Acenaphthylene	240	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Anthracene	580	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)anthracene	1400	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(a)pyrene	1200	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(b)fluoranthene	1500	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(e)pyrene	860	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(g,h,i)perylene	820	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Benzo(k)fluoranthene	1100	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C1-Benzanthrene/chrysenes	1000	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluoranthenes/Pyrenes	2100	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C1-Fluorenes	210	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C1-Naphthalenes	400	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C1-Phenanthrenes/anthracenes	1600	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C2-Benzanthrene/chrysenes	560	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluoranthenes/Pyrenes	1000	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C2-Fluorenes	190	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C2-Naphthalenes	430	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C2-Phenanthrenes/anthracenes	1100	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C3-Benzanthrene/chrysenes	230	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluoranthenes/Pyrenes	670	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C3-Fluorenes	300	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C3-Naphthalenes	540	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C3-Phenanthrenes/anthracenes	790	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C4-Benzanthrene/chrysenes	110	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C4-Naphthalenes	380	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	C4-Phenanthrenes/anthracenes	540	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Chrysene	1500	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Dibenzo(a,h)anthracene	280	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Fluoranthene	3000	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Fluorene	270	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Indeno(1,2,3-Cd)Pyrene	980	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Naphthalene	1500	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Perylene	360	µg/kg	J	HTP
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Phenanthrene	1200	µg/kg	J	LR
SD-008-2.5/3.5	KIN01	SW8270DSIM	REANALYSIS	Pyrene	1400	µg/kg	J	LR
SD-008-2.5/3.5	KIN02	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-008-3.5/4.6	KIN01	SW6010C	INITIAL	Antimony	7.11	mg/kg	U	LBH
SD-008-3.5/4.6	KIN01	SW8270DSIM	INITIAL	Benzo(a)anthracene	730	µg/kg	J	LR
SD-008-3.5/4.6	KIN01	SW8270DSIM	INITIAL	Benzo(a)pyrene	660	µg/kg	J	LR
SD-008-3.5/4.6	KIN01	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	610	µg/kg	J	LR
SD-008-3.5/4.6	KIN01	SW8270DSIM	INITIAL	Chrysene	730	µg/kg	J	LR
SD-008-3.5/4.6	KIN01	SW8270DSIM	INITIAL	Fluoranthene	930	µg/kg	J	LR
SD-008-3.5/4.6	KIN01	SW8270DSIM	INITIAL	Pyrene	720	µg/kg	J	LR
SD-008-3.5/4.6	KIN02	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-008-4.6/5.3	KIN02	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-009-0.0/0.5	KIN04	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-009-0.5/1.5	KIN04	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	86	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	160	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	89	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	110	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Anthracene	280	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	710	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	690	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	840	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	570	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	520	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	640	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	500	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1100	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	120	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	160	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	470	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	230	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	490	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	99	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	250	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	510	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	120	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	220	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	180	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	350	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	400	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.2	µg/kg	UJ	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	300	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.2	µg/kg	UJ	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Chrysene	920	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	150	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	1800	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Fluorene	180	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	560	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	1100	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Perylene	150	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	830	µg/kg	J	SSL
SD-009-1.5/2.5	KIN03	SW8270DSIM	INITIAL	Pyrene	1100	µg/kg	J	SSL
SD-009-1.5/2.5	KIN04	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-009-1.5/2.5-FD	KIN04	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	130	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	220	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	100	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	140	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Anthracene	300	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	830	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	850	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	1000	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	710	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	640	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	820	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	580	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1400	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	160	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	220	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	530	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	220	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	650	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	140	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	280	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	570	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	110	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	300	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	260	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	390	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	500	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	370	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	240	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Chrysene	1100	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	190	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	1900	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Fluorene	210	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	710	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	1500	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Perylene	180	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	860	µg/kg	J	SSL
SD-009-2.5/3.5	KIN03	SW8270DSIM	INITIAL	Pyrene	940	µg/kg	J	SSL
SD-009-2.5/3.5	KIN04	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-009-3.5/4.5	KIN04	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-009-4.5/5.5	KIN04	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	200	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	340	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	190	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	270	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Anthracene	600	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	1500	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	1300	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	1200	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	1000	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	810	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	1100	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	1100	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	2800	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	300	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	350	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	1200	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	520	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	1400	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	250	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	470	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	1600	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	320	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	680	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	360	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	600	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	1100	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	510	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	480	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Chrysene	1700	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	240	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Fluorene	330	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	960	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	1700	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Perylene	350	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	1400	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW8270DSIM	INITIAL	Pyrene	1900	µg/kg	J	SSH
SD-009-5.5/6.5	KIN03	SW9012B	INITIAL	Cyanide	1.6	mg/kg	J	SSH
SD-009-5.5/6.5	KIN04	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	120	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	220	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	130	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	190	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Anthracene	310	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	910	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	830	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	760	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	620	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	530	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	840	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	760	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1500	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	260	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	210	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	660	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	390	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	770	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	200	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	300	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	810	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	190	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	380	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	230	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	450	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	600	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	350	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	280	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Chrysene	1000	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	170	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	1800	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Fluorene	240	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	600	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	1100	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Perylene	200	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	830	µg/kg	J	SSL
SD-009-6.5/7.5	KIN03	SW8270DSIM	INITIAL	Pyrene	1100	µg/kg	J	SSL
SD-009-6.5/7.5	KIN04	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	1-Methylnaphthalene	6.4	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	2-Methylnaphthalene	13	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Acenaphthene	13	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Acenaphthylene	17	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Anthracene	24	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)anthracene	61	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Benzo(a)pyrene	56	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	57	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Benzo(e)pyrene	40	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	39	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	45	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	47	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	110	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C1-Fluorenes	15	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C1-Naphthalenes	12	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	52	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	24	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	47	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C2-Fluorenes	13	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C2-Naphthalenes	17	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	61	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	12	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	26	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C3-Fluorenes	24	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C3-Naphthalenes	27	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	49	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C4-Naphthalenes	26	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.3	µg/kg	UJ	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Chrysene	66	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	12	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Fluoranthene	160	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Fluorene	15	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	43	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Naphthalene	67	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Perylene	13	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Phenanthrene	59	µg/kg	J	SSL
SD-009-7.5/8.5	KIN03	SW8270DSIM	INITIAL	Pyrene	94	µg/kg	J	SSL
SD-009-7.5/8.5	KIN04	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-009-8.5/9.5	KIN04	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-009-9.5/10.5	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	2	µg/kg	U	LBH
SD-009-9.5/10.5	KIN03	SW8270DSIM	INITIAL	Pyrene	2.2	µg/kg	J	LCSL
SD-009-9.5/10.5	KIN04	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-009-10.5/11.8	KIN03	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	2	µg/kg	U	LBH
SD-009-10.5/11.8	KIN03	SW8270DSIM	INITIAL	Pyrene	2.2	µg/kg	J	LCSL
SD-009-10.5/11.8	KIN04	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-010-0.0/0.5	KIN12	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-010-0.5/1.5	KIN12	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-010-1.5/2.5	KIN12	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-010-1.5/2.5-FD	KIN12	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-010-2.5/3.5	KIN12	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-010-3.5/5.0	KIN11	SW6010C	INITIAL	Antimony	1.47	mg/kg	J	MSL
SD-010-3.5/5.0	KIN11	SW6010C	INITIAL	Copper	123	mg/kg	J	MSL
SD-010-3.5/5.0	KIN11	SW6020A	INITIAL	Beryllium	1.1	mg/kg	J	MSH
SD-010-3.5/5.0	KIN11	SW8270DSIM	INITIAL	1-Methylnaphthalene	78	µg/kg	J	MSH
SD-010-3.5/5.0	KIN11	SW8270DSIM	INITIAL	2-Methylnaphthalene	170	µg/kg	J	MSH
SD-010-3.5/5.0	KIN11	SW8270DSIM	INITIAL	Acenaphthene	95	µg/kg	J	MSH
SD-010-3.5/5.0	KIN11	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	230	µg/kg	J	MSH
SD-010-3.5/5.0	KIN11	SW8270DSIM	INITIAL	Fluorene	210	µg/kg	J	MSH
SD-010-3.5/5.0	KIN12	E821-R-91-100	INITIAL	Acid Volatile Sulfide	19.9	µmol/g	J-	MSL
SD-010-3.5/5.0	KIN12	SW6010C	INITIAL	Lead	1.31	µmol/g	J	SDIL
SD-010-3.5/5.0	KIN12	SW6010C	INITIAL	Nickel	0.397	µmol/g	J-	MSL
SD-010-3.5/5.0	KIN12	SW6010C	INITIAL	Silver	0.00222	µmol/g	UJ	MSL
SD-010-3.5/5.0	KIN12	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	36	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	68	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Acenaphthene	30	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	52	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Anthracene	110	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	370	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	410	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	430	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	310	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	310	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	410	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	250	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	410	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	29	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	65	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	170	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	120	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	200	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	33	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	69	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	150	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	70	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	93	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	62	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	100	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	100	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	27	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	68	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.3	µg/kg	UJ	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Chrysene	470	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	84	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Fluoranthene	760	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Fluorene	68	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	370	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Naphthalene	440	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Perylene	100	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Phenanthrene	330	µg/kg	J	SSL
SD-011-0.0/0.5	KIN05	SW8270DSIM	INITIAL	Pyrene	520	µg/kg	J	SSL
SD-011-0.0/0.5	KIN08	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	110	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	170	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Acenaphthene	37	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	60	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Anthracene	140	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	440	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	470	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	460	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	350	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	330	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	470	µg/kg	J	SSL

Table 3. Sample Summary

Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	300	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	520	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	40	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	170	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	240	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	140	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	250	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	55	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	220	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	210	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	85	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	120	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	90	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	240	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	150	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	130	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Chrysene	530	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	94	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Fluoranthene	830	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Fluorene	88	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	400	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Naphthalene	580	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Perylene	110	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Phenanthrene	400	µg/kg	J	SSL
SD-011-0.5/1.5	KIN05	SW8270DSIM	INITIAL	Pyrene	580	µg/kg	J	SSL
SD-011-0.5/1.5	KIN08	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	18	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	36	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Acenaphthene	20	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	41	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Anthracene	81	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	270	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	300	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	330	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	220	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	220	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	250	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	180	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	330	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	26	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	35	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	130	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	92	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	170	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	31	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	38	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	120	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	49	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	80	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	50	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	54	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	84	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	38	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.3	µg/kg	UJ	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Chrysene	350	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	63	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Fluoranthene	510	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Fluorene	45	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	260	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Naphthalene	230	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Perylene	71	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Phenanthrene	200	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN05	SW8270DSIM	INITIAL	Pyrene	360	µg/kg	J	SSL
SD-011-0.5/1.5-FD	KIN08	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	200	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	390	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Acenaphthene	120	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	190	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Anthracene	370	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	1300	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	1300	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	1600	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	1000	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	940	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	1100	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	870	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1300	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	140	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	370	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	660	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	430	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	600	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	160	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	330	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	550	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	240	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	320	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	330	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	430	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	430	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	300	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.3	µg/kg	UJ	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Chrysene	1600	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	250	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Fluoranthene	2000	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Fluorene	280	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	1100	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Naphthalene	1700	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Perylene	340	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Phenanthrene	1200	µg/kg	J	SSL
SD-011-1.5/2.5	KIN05	SW8270DSIM	INITIAL	Pyrene	1700	µg/kg	J	SSL
SD-011-1.5/2.5	KIN08	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	40	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	84	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Acenaphthene	44	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	80	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Anthracene	170	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	560	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	540	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	520	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	400	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	360	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	520	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	420	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	670	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	57	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	77	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	290	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	160	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	290	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	60	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	78	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	270	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	89	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	160	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	100	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	140	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	200	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.2	µg/kg	UJ	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	110	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.2	µg/kg	UJ	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Chrysene	650	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	99	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Fluoranthene	1000	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Fluorene	100	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	430	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Naphthalene	500	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Perylene	130	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Phenanthrene	470	µg/kg	J	SSL
SD-011-2.5/3.1	KIN05	SW8270DSIM	INITIAL	Pyrene	740	µg/kg	J	SSL
SD-011-2.5/3.1	KIN08	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	1-Methylnaphthalene	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	2-Methylnaphthalene	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Acenaphthene	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Acenaphthylene	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Anthracene	9.6	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Benzo(a)anthracene	14	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Benzo(a)pyrene	12	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	11	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Benzo(e)pyrene	8.8	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	9.2	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	11	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	11	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	23	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C1-Fluorenes	7.3	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C1-Naphthalenes	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	19	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	6.3	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	10	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C2-Fluorenes	6.3	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C2-Naphthalenes	8.8	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	21	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	6.8	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C3-Fluorenes	8.4	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C3-Naphthalenes	14	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	11	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C4-Naphthalenes	14	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Chrysene	17	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	8.3	µg/kg	UJ	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Fluoranthene	46	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Fluorene	9.1	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	10	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Naphthalene	20	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Perylene	11	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Phenanthrene	26	µg/kg	J	SSL
SD-011-3.1/4.0	KIN05	SW8270DSIM	INITIAL	Pyrene	29	µg/kg	J	SSL
SD-011-3.1/4.0	KIN08	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-012-0.0/0.5	KIN13	SW6010C	INITIAL	Antimony	8.5	mg/kg	U	CCBH
SD-012-0.0/0.5	KIN13	SW6010C	INITIAL	Selenium	8.5	mg/kg	U	CCBH
SD-012-0.0/0.5	KIN13	SW6010C	INITIAL	Thallium	12.7	mg/kg	U	CCBH
SD-012-0.0/0.5	KIN14	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-012-0.5/1.5	KIN13	SW6010C	INITIAL	Antimony	7.97	mg/kg	U	CCBH
SD-012-0.5/1.5	KIN13	SW6010C	INITIAL	Selenium	7.97	mg/kg	U	CCBH
SD-012-0.5/1.5	KIN14	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-012-1.5/2.5	KIN13	SW6010C	INITIAL	Antimony	7.26	mg/kg	U	LBH

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-012-1.5/2.5	KIN13	SW6010C	INITIAL	Selenium	7.26	mg/kg	U	CCBH
SD-012-1.5/2.5	KIN13	SW6010C	INITIAL	Thallium	10.9	mg/kg	U	CCBH
SD-012-1.5/2.5	KIN14	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-012-1.5/2.5-FD	KIN13	SW6010C	INITIAL	Selenium	7.46	mg/kg	U	CCBH
SD-012-1.5/2.5-FD	KIN13	SW6010C	INITIAL	Thallium	11.2	mg/kg	U	CCBH
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	1-Methylnaphthalene	170	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	2-Methylnaphthalene	310	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Acenaphthene	76	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Acenaphthylene	190	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Anthracene	350	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Benzo(a)anthracene	900	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Benzo(a)pyrene	930	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	1000	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Benzo(e)pyrene	740	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	640	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	1000	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	630	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1000	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C1-Fluorenes	83	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C1-Naphthalenes	310	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	500	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	310	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	370	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C2-Fluorenes	65	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C2-Naphthalenes	320	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	420	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	16	µg/kg	UJ	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	220	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C3-Fluorenes	16	µg/kg	UJ	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C3-Naphthalenes	400	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	310	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	16	µg/kg	UJ	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C4-Naphthalenes	220	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	16	µg/kg	UJ	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Chrysene	1100	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	190	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Fluoranthene	1600	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Fluorene	190	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	820	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Naphthalene	940	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Perylene	240	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Phenanthrene	840	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN13	SW8270DSIM	INITIAL	Pyrene	1300	µg/kg	J	SSL
SD-012-1.5/2.5-FD	KIN14	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-012-2.5/3.5	KIN13	SW6010C	INITIAL	Antimony	7.37	mg/kg	U	LBH
SD-012-2.5/3.5	KIN13	SW6010C	INITIAL	Selenium	7.37	mg/kg	U	CCBH
SD-012-2.5/3.5	KIN13	SW6010C	INITIAL	Thallium	11.1	mg/kg	U	CCBH
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	1-Methylnaphthalene	68	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	2-Methylnaphthalene	130	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Acenaphthene	63	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Acenaphthylene	160	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Anthracene	260	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Benzo(a)anthracene	780	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Benzo(a)pyrene	860	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	920	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Benzo(e)pyrene	660	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	590	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	860	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	520	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	880	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C1-Fluorenes	61	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C1-Naphthalenes	130	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	340	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	230	µg/kg	J	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	310	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C2-Fluorenes	48	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C2-Naphthalenes	140	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	320	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	17	µg/kg	UJ	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	160	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C3-Fluorenes	17	µg/kg	UJ	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C3-Naphthalenes	170	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	260	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	17	µg/kg	UJ	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C4-Naphthalenes	130	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	17	µg/kg	UJ	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Chrysene	980	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	170	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Fluoranthene	1500	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Fluorene	130	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	730	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Naphthalene	540	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Perylene	210	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Phenanthrene	640	µg/kg	J	SSL
SD-012-2.5/3.5	KIN13	SW8270DSIM	INITIAL	Pyrene	1100	µg/kg	J	SSL
SD-012-2.5/3.5	KIN14	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-012-3.5/4.5	KIN13	SW6010C	INITIAL	Selenium	8.18	mg/kg	U	CCBH
SD-012-3.5/4.5	KIN13	SW6010C	INITIAL	Thallium	12.3	mg/kg	U	CCBH
SD-012-3.5/4.5	KIN14	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-012-4.5/5.5	KIN13	SW6010C	INITIAL	Copper	131	mg/kg	J	MSL
SD-012-4.5/5.5	KIN13	SW6010C	INITIAL	Selenium	7.8	mg/kg	U	CCBH
SD-012-4.5/5.5	KIN13	SW6010C	INITIAL	Thallium	11.7	mg/kg	U	CCBH
SD-012-4.5/5.5	KIN14	SW6010C	INITIAL	Cadmium	0.0714	µmol/g	J	MSL
SD-012-4.5/5.5	KIN14	SW6010C	INITIAL	Copper	0.588	µmol/g	J	MSL
SD-012-4.5/5.5	KIN14	SW6010C	INITIAL	Nickel	0.299	µmol/g	J	MSL
SD-012-4.5/5.5	KIN14	SW6010C	INITIAL	Silver	0.00115	µmol/g	J	MSL
SD-012-4.5/5.5	KIN14	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-012-5.5/6.5	KIN13	SW6010C	INITIAL	Selenium	7.81	mg/kg	U	CCBH
SD-012-5.5/6.5	KIN13	SW6010C	INITIAL	Thallium	11.7	mg/kg	U	CCBH
SD-012-5.5/6.5	KIN14	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	1-Methylnaphthalene	330	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	2-Methylnaphthalene	670	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Acenaphthene	410	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Acenaphthylene	1100	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Anthracene	2300	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Benzo(a)anthracene	5400	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Benzo(a)pyrene	4900	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	6300	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Benzo(e)pyrene	3400	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	3000	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	3800	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	3900	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	9200	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C1-Fluorenes	860	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C1-Naphthalenes	660	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	4300	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	1800	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	4600	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C2-Fluorenes	780	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C2-Naphthalenes	1100	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	6200	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	1300	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	2600	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C3-Fluorenes	1400	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C3-Naphthalenes	2600	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	4800	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	450	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C4-Naphthalenes	2700	µg/kg	J	SSH

Table 3. Sample Summary
Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	2200	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Chrysene	5500	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	1000	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Fluorene	1000	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	3300	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Naphthalene	5300	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Perylene	1100	µg/kg	J	SSH
SD-012-6.5/7.5	KIN13	SW8270DSIM	INITIAL	Phenanthrene	4200	µg/kg	J	SSH
SD-012-6.5/7.5	KIN14	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-012-7.5/8.5	KIN13	SW8270DSIM	DILUTION1	Fluoranthene	11000	µg/kg	J	SSH
SD-012-7.5/8.5	KIN13	SW8270DSIM	DILUTION1	Naphthalene	8200	µg/kg	J	SSH
SD-012-7.5/8.5	KIN13	SW8270DSIM	DILUTION1	Pyrene	8500	µg/kg	J	SSH
SD-012-7.5/8.5	KIN14	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL
SD-012-8.5/9.5	KIN13	SW6010C	INITIAL	Selenium	7.26	mg/kg	U	CCBH
SD-012-8.5/9.5	KIN14	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-012-9.5/10.5	KIN13	SW6010C	INITIAL	Thallium	11.1	mg/kg	U	CCBH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	1-Methylnaphthalene	290	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	2-Methylnaphthalene	520	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Acenaphthene	280	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Acenaphthylene	550	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Anthracene	1000	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Benzo(a)anthracene	2800	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Benzo(a)pyrene	2200	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	2100	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Benzo(e)pyrene	1500	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	900	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	2100	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	2100	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	3300	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C1-Fluorenes	750	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C1-Naphthalenes	510	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	2000	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	880	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	1500	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C2-Fluorenes	340	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C2-Naphthalenes	880	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	2100	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	800	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	740	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C3-Fluorenes	460	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C3-Naphthalenes	1300	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	1200	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	240	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C4-Naphthalenes	950	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	620	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Chrysene	2900	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	330	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Fluoranthene	3800	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Fluorene	740	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	1200	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Naphthalene	4200	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Perylene	500	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Phenanthrene	2200	µg/kg	J	SSH
SD-012-9.5/10.5	KIN13	SW8270DSIM	INITIAL	Pyrene	3500	µg/kg	J	SSH
SD-012-9.5/10.5	KIN14	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-012-10.5/12.2	KIN13	SW6010C	INITIAL	Antimony	6.31	mg/kg	U	LBH
SD-012-10.5/12.2	KIN13	SW6010C	INITIAL	Selenium	6.31	mg/kg	U	CCBH
SD-012-10.5/12.2	KIN14	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-013-0.0/0.5	KIN06	SW8270DSIM	DILUTION1	Pyrene	880	µg/kg	J	CCVL
SD-013-0.0/0.5	KIN09	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL
SD-013-0.5/1.5	KIN06	SW8270DSIM	DILUTION1	Pyrene	750	µg/kg	J	CCVL
SD-013-0.5/1.5	KIN09	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-013-1.5/2.5	KIN06	SW8270DSIM	DILUTION1	Pyrene	530	µg/kg	J	CCVL
SD-013-1.5/2.5	KIN09	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	1-Methylnaphthalene	49	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	2-Methylnaphthalene	93	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Acenaphthene	42	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Acenaphthylene	67	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Anthracene	130	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Benzo(e)pyrene	490	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	480	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	580	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	370	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	780	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C1-Fluorenes	83	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C1-Naphthalenes	90	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	250	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	170	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	310	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C2-Fluorenes	47	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C2-Naphthalenes	120	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	250	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	93	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	130	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C3-Fluorenes	95	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C3-Naphthalenes	150	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	170	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C4-Naphthalenes	130	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	130	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Fluorene	98	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	540	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Naphthalene	420	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Perylene	160	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	INITIAL	Phenanthrene	400	µg/kg	J	SSL
SD-013-2.5/3.5	KIN06	SW8270DSIM	DILUTION1	Pyrene	640	µg/kg	J	CCVL
SD-013-2.5/3.5	KIN09	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-013-3.5/4.5	KIN06	SW6010C	INITIAL	Antimony	3.85	mg/kg	UJ	MSL
SD-013-3.5/4.5	KIN06	SW7471B	INITIAL	Mercury	0.472	mg/kg	J	MSH
SD-013-3.5/4.5	KIN06	SW8082A	INITIAL	Aroclor 1016	0.084	mg/kg	UJ	MSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	1-Methylnaphthalene	31	µg/kg	J	MSALL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	2-Methylnaphthalene	66	µg/kg	J	MSALL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Acenaphthene	30	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Acenaphthylene	49	µg/kg	J	MSDL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Anthracene	98	µg/kg	J	MSH
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Benzo(a)anthracene	470	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Benzo(a)pyrene	510	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	570	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Benzo(e)pyrene	360	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	340	µg/kg	J	MSDP
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	390	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	270	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	460	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C1-Fluorenes	36	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C1-Naphthalenes	60	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	160	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	130	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	160	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C2-Fluorenes	23	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C2-Naphthalenes	66	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	150	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	79	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	100	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C3-Fluorenes	1.7	µg/kg	UJ	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C3-Naphthalenes	88	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	100	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C4-Naphthalenes	66	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Chrysene	570	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	90	µg/kg	J	MSH
SD-013-3.5/4.5	KIN06	SW8270DSIM	DILUTION1	Fluoranthene	920	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Fluorene	59	µg/kg	J	MSH
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	380	µg/kg	J	MSDP
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Naphthalene	290	µg/kg	J	MSDP
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Perylene	120	µg/kg	J	MSH
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Phenanthrene	350	µg/kg	J	SSL
SD-013-3.5/4.5	KIN06	SW8270DSIM	INITIAL	Pyrene	610	µg/kg	J	SSL
SD-013-3.5/4.5	KIN09	SW6010C	INITIAL	Cadmium	0.0327	µmol/g	J	MSL
SD-013-3.5/4.5	KIN09	SW6010C	INITIAL	Copper	0.732	µmol/g	J	MSL
SD-013-3.5/4.5	KIN09	SW6010C	INITIAL	Nickel	0.205	µmol/g	J	MSL
SD-013-3.5/4.5	KIN09	SW6010C	INITIAL	Silver	0.00227	µmol/g	R	MSL
SD-013-3.5/4.5	KIN09	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
SD-013-4.5/5.5	KIN09	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	1-Methylnaphthalene	38	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	2-Methylnaphthalene	91	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	Acenaphthene	62	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	Acenaphthylene	87	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	Anthracene	270	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Benzo(a)anthracene	820	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Benzo(a)pyrene	840	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Benzo(b)fluoranthene	790	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Benzo(e)pyrene	620	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Benzo(g,h,i)perylene	600	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Benzo(k)fluoranthene	810	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	490	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	1400	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C1-Fluorenes	79	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C1-Naphthalenes	84	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	430	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	210	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	540	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C2-Fluorenes	66	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C2-Naphthalenes	96	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	460	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	120	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	230	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C3-Fluorenes	160	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C3-Naphthalenes	140	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	330	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	1.7	µg/kg	UJ	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C4-Naphthalenes	160	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	1.7	µg/kg	UJ	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Chrysene	980	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	190	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Fluoranthene	1700	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	Fluorene	130	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Indeno(1,2,3-Cd)Pyrene	680	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	Naphthalene	600	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	INITIAL	Perylene	200	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Phenanthrene	730	µg/kg	J	SSL
SD-013-5.5/6.5	KIN06	SW8270DSIM	DILUTION1	Pyrene	950	µg/kg	J	SSL
SD-013-5.5/6.5	KIN09	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-013-6.5/7.5	KIN09	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
SD-013-7.5/8.5	KIN06	SW8082A	INITIAL	Aroclor 1254	0.017	mg/kg	UJ	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	1-Methylnaphthalene	340	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	2-Methylnaphthalene	830	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Acenaphthene	550	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Acenaphthylene	920	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Anthracene	2400	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Benzo(a)anthracene	5700	µg/kg	J	FD

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Benzo(a)pyrene	4800	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Benzo(b)fluoranthene	4700	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Benzo(e)pyrene	3200	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Benzo(g,h,i)perylene	3000	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Benzo(k)fluoranthene	3900	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	3300	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	9300	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C1-Fluorenes	2000	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C1-Naphthalenes	740	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	3500	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	1500	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	3900	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C2-Fluorenes	980	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C2-Naphthalenes	760	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	3900	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	880	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	2200	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C3-Fluorenes	1100	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C3-Naphthalenes	1200	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	3000	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	310	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C4-Naphthalenes	1200	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	1200	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Chrysene	5800	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	900	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Fluoranthene	11000	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Fluorene	2400	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Indeno(1,2,3-Cd)Pyrene	3400	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Naphthalene	12000	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Perylene	1200	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Phenanthrene	6500	µg/kg	J	FD
SD-013-7.5/8.5	KIN06	SW8270DSIM	INITIAL	Pyrene	6000	µg/kg	J	FD
SD-013-7.5/8.5	KIN09	SW7471B	INITIAL	Mercury	0.00015	µmol/g	R	MSL
SD-013-7.5/8.5-FD	KIN06	SW8082A	INITIAL	Aroclor 1254	0.77	mg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	1-Methylnaphthalene	71	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	2-Methylnaphthalene	190	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	Acenaphthene	120	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	Acenaphthylene	200	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	Anthracene	490	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Benzo(a)anthracene	1600	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Benzo(a)pyrene	1500	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Benzo(b)fluoranthene	1300	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Benzo(e)pyrene	1000	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Benzo(g,h,i)perylene	1000	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Benzo(k)fluoranthene	1300	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C1-Benzanthrene/chrysenes	910	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C1-Fluoranthenes/Pyrenes	2000	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C1-Fluorenes	290	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C1-Naphthalenes	170	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C1-Phenanthrenes/anthracenes	700	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C2-Benzanthrene/chrysenes	410	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C2-Fluoranthenes/Pyrenes	900	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C2-Fluorenes	160	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C2-Naphthalenes	220	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C2-Phenanthrenes/anthracenes	830	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C3-Benzanthrene/chrysenes	290	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C3-Fluoranthenes/Pyrenes	460	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C3-Fluorenes	260	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C3-Naphthalenes	300	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C3-Phenanthrenes/anthracenes	620	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C4-Benzanthrene/chrysenes	110	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C4-Naphthalenes	320	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	C4-Phenanthrenes/anthracenes	380	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Chrysene	1700	µg/kg	J	FD

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	Dibenzo(a,h)anthracene	320	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Fluoranthene	3200	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	Fluorene	350	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Indeno(1,2,3-Cd)Pyrene	1100	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Naphthalene	2500	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	INITIAL	Perylene	330	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Phenanthrene	1600	µg/kg	J	FD
SD-013-7.5/8.5-FD	KIN06	SW8270DSIM	DILUTION1	Pyrene	1700	µg/kg	J	CCVL
SD-013-7.5/8.5-FD	KIN09	SW7471B	INITIAL	Mercury	0.000149	µmol/g	R	MSL
SD-013-8.5/9.5	KIN07	SW8082A	INITIAL	Aroclor 1254	0.032	mg/kg	J	CFP
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	1-Methylnaphthalene	1000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	2-Methylnaphthalene	2500	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthene	1300	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthylene	3200	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Anthracene	5700	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)anthracene	14000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)pyrene	12000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Benzo(b)fluoranthene	12000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Benzo(e)pyrene	8300	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Benzo(g,h,i)perylene	6300	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Benzo(k)fluoranthene	11000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C1-Benzanthrene/chrysenes	9900	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluoranthenes/Pyrenes	19000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluorenes	2500	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C1-Naphthalenes	2300	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C1-Phenanthrenes/anthracenes	8400	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C2-Benzanthrene/chrysenes	4600	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluoranthenes/Pyrenes	9700	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluorenes	2500	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C2-Naphthalenes	2500	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C2-Phenanthrenes/anthracenes	11000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C3-Benzanthrene/chrysenes	3000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluoranthenes/Pyrenes	6000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluorenes	3700	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C3-Naphthalenes	4400	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C3-Phenanthrenes/anthracenes	8500	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C4-Benzanthrene/chrysenes	960	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C4-Naphthalenes	4100	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	C4-Phenanthrenes/anthracenes	4100	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Chrysene	14000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Dibenzo(a,h)anthracene	2500	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Fluoranthene	22000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Fluorene	4000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Indeno(1,2,3-Cd)Pyrene	8300	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Naphthalene	27000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Perylene	2900	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Phenanthrene	12000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN07	SW8270DSIM	DILUTION1	Pyrene	16000	µg/kg	J	SSH
SD-013-8.5/9.5	KIN10	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	1-Methylnaphthalene	1400	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	2-Methylnaphthalene	2900	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthene	2700	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthylene	2500	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Anthracene	7300	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)anthracene	11000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)pyrene	8800	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Benzo(b)fluoranthene	8800	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Benzo(e)pyrene	6200	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Benzo(g,h,i)perylene	4800	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Benzo(k)fluoranthene	7500	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C1-Benzanthrene/chrysenes	8900	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluoranthenes/Pyrenes	21000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluorenes	4000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C1-Naphthalenes	2700	µg/kg	J	SSH

Table 3. Sample Summary

Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C1-Phenanthrenes/anthracenes	13000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C2-Benzanthrene/chrysenes	4200	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluoranthenes/Pyrenes	8900	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluorenes	3400	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C2-Naphthalenes	3600	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C2-Phenanthrenes/anthracenes	13000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C3-Benzanthrene/chrysenes	2600	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluoranthenes/Pyrenes	4200	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluorenes	4200	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C3-Naphthalenes	5300	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C3-Phenanthrenes/anthracenes	8800	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C4-Benzanthrene/chrysenes	1000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C4-Naphthalenes	4300	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	C4-Phenanthrenes/anthracenes	3800	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Chrysene	12000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Dibenzo(a,h)anthracene	2000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Fluoranthene	23000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Fluorene	5500	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Indeno(1,2,3-Cd)Pyrene	5900	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Naphthalene	19000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Perylene	2000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Phenanthrene	16000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN07	SW8270DSIM	DILUTION1	Pyrene	16000	µg/kg	J	SSH
SD-013-9.5/10.5	KIN10	SW7471B	INITIAL	Mercury	0.000145	µmol/g	R	MSL
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	1-Methylnaphthalene	930	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	2-Methylnaphthalene	1800	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthene	1100	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Acenaphthylene	2100	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Anthracene	4300	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)anthracene	9400	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Benzo(a)pyrene	7600	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Benzo(b)fluoranthene	7400	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Benzo(e)pyrene	5400	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Benzo(g,h,i)perylene	4200	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Benzo(k)fluoranthene	7700	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C1-Benzanthrene/chrysenes	7500	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluoranthenes/Pyrenes	15000	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C1-Fluorenes	2600	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C1-Naphthalenes	1700	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C1-Phenanthrenes/anthracenes	7800	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C2-Benzanthrene/chrysenes	3800	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluoranthenes/Pyrenes	7500	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C2-Fluorenes	2300	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C2-Naphthalenes	2200	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C2-Phenanthrenes/anthracenes	9400	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C3-Benzanthrene/chrysenes	2400	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluoranthenes/Pyrenes	4700	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C3-Fluorenes	3200	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C3-Naphthalenes	3200	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C3-Phenanthrenes/anthracenes	6400	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C4-Benzanthrene/chrysenes	780	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C4-Naphthalenes	2900	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	C4-Phenanthrenes/anthracenes	2900	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Chrysene	9800	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Dibenzo(a,h)anthracene	1700	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Fluoranthene	17000	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Fluorene	3000	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Indeno(1,2,3-Cd)Pyrene	5200	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Naphthalene	14000	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Perylene	1800	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Phenanthrene	10000	µg/kg	J	SSH
SD-013-10.5/11.5	KIN07	SW8270DSIM	DILUTION1	Pyrene	11000	µg/kg	J	SSH
SD-013-10.5/11.5	KIN10	SW7471B	INITIAL	Mercury	0.000148	µmol/g	R	MSL
SD-013-11.5/13.0	KIN10	SW7471B	INITIAL	Mercury	0.000147	µmol/g	R	MSL

Table 3. Sample Summary

Kinnickinnic River Mooring Basin

Sample ID	SDG	Method	Analytical Run	Analyte	Result	Unit	Final Qualifier	Reason Code
TX-010-0.0/0.5	KIN15	SW6010C	INITIAL	Antimony	9.25	mg/kg	U	LBH
TX-010-0.0/0.5	KIN16	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
TX-012-0.0/0.5	KIN15	SW6010C	INITIAL	Antimony	8.75	mg/kg	U	LBH
TX-012-0.0/0.5	KIN16	SW7471B	INITIAL	Mercury	0.000146	µmol/g	R	MSL
TX-012-0.5/5.0	KIN15	SW6010C	INITIAL	Antimony	7.23	mg/kg	U	LBH
TX-012-0.5/5.0	KIN16	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
TX-014-0.0/0.5	KIN15	SW6010C	INITIAL	Antimony	11.5	mg/kg	U	LBH
TX-014-0.0/0.5	KIN16	SW7471B	INITIAL	Mercury	0.000144	µmol/g	R	MSL
TX-014-0.5/5.0	KIN15	SW6010C	INITIAL	Antimony	7.44	mg/kg	U	LBH
TX-014-0.5/5.0	KIN16	SW7471B	INITIAL	Mercury	0.000143	µmol/g	R	MSL

mg/kg = milligram per kilogram; µg/kg = microgram per kilogram; µmol/g = micromole per gram

Reason Code Definitions:

CCBH = Continuing calibration blank concentration greater than the RL
CCVL = Continuing calibration recovery less than lower control limit
CFP = Confirmation precision exceeded
FD = Field duplicate exceeds RPD criteria
HTP = Preparation Holding Time exceeded
LBH = Laboratory blank contamination greater than the RL
LCSL = LCS recovery less than the criteria
LDP = Laboratory Duplicate Precision out
LR = Linear range exceeded. Concentration above linear range.
MSALL = Global matrix spike flagging
MSDL = Matrix spike duplicate recovery criteria less than the lower limit
MSDP = Matrix Spike Duplicate RPD criteria exceedance
MSH = Matrix spike recovery criteria greater than the upper limit
MSL = Matrix spike recovery criteria less than the lower limit
SDIL = Serial Dilution %D exceeds the upper control limit
SSH = Surrogate recovery greater than upper limit
SSL = Surrogate recovery less than lower limit

Attachment 1
Locational Data Checklist and Metadata Recording Forms

U.S. EPA Great Lakes National Program Office
Locational Data Checklist and Metadata Recording Form

This document accompanies *GLNPO's Great Lakes Legacy Act Data Reporting Standard*, Version 1.0, March 2010, which provides detailed data reporting guidance for project data including required electronic data deliverables (EDD). In addition to the EDD and project field forms, project participants are required to complete this checklist at the end of each sampling event. Copies of completed forms should be submitted to the GLNPO Project Lead.

Contact Information

Contact Name: Joe Bonem Phone Number: 947 6869640

Affiliation: Cetacean Marine Inc E-mail Address: Jbonem@CetaceanMarine.com

Study Information

Project Title: Kinnickinnic Mooring Basin Sediment Investigation

Site Name: Kinnickinnic Mooring Basin, Milwaukee WI

Sampling Start Date: 5-11-15 Sampling Stop Date:

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). [✓]
2. Determined window of satellite availability. http://www.trimble.com/planningsoftware_ts.asp [ ]
3. Established at least two control points for both vertical and horizontal accuracy. For assistance locating control points visit http://www.ngs.noaa.gov/cgi-bin/datasheet.prl or http://www.geocaching.com/mark/. This may not be feasible if the GPS unit is mounted to a vessel. * [ ]
4. Located 3 reference points. * [ ]

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 [✓]
   - b. Position dilution of precision (PDOP)<=6 [✓]
   - c. Satellite elevation >=15° above the horizon [✓]
   - d. A minimum signal-to-noise ratio (refer to GPS user manual for recommendation) [ ]
2. Collected point data based on the nearest base station's logging interval. [ ]
3. Collected point data for a period of at least 1 minute per location. [ ]
4. Reported locational data in WGS 84 or NAD 83 (please specify WGS 84). [✓]

Please provide an explanation if a box was not checked for any of the responses above and specify deviations (include sample IDs if applicable):

2 No control point accessable to BOAT known
No reference points accessable to BOAT known
DATA collected Based on core requirements

*Collect these points on at least the first day of sampling. Collecting on each sampling day is recommended. Record on page 2.

GPS Unit Specifications

GPS Brand and model number: Trimble Pro XRS

Model accuracy: sub meter

Data Processing

Which of the following best describes any data correction that may have been performed:

[X] real-time correction - specify type: Corps Beacon

[ ] post processed differential correction - provide base station id and location

[ ] no correction

[ ] other, please specify

Quality Information

Describe any difficulties in collecting locational data:

List final post-processed accuracy of the data:

Data Collector:

Confirm required information has been provided.

[signature]
Signature Date: 5-15-15

GLNPO Project Lead:

Confirm required information has been provided.

Signature Date

Attachment 2
CB&I Validated Data Report

CB&I
2700 Chandler Avenue, Building C
Las Vegas, NV 89120
Tel: +1 702 795 0515
Fax: +1 702 795 8210
www.CBI.com

October 27, 2015

Mark Loomis
Environmental Scientist
US EPA Great Lakes National Program Office
77 W. Jackson Blvd G-17J
Chicago, IL 60604

Document ID #: 4025-10272015-1

Dear Mr. Loomis:

EPA CONTRACT NUMBER EP-W-10-033
TASK ORDER NUMBER 4025
DATA VALIDATION SUPPORT

Enclosed please find the Release of Validated Data Report for the validation of Semivolatile, Semivolatile SIM, Aroclor, Metals, Mercury, Total Cyanide, Total Organic Carbon (TOC), Acid Volatile Sulfide (AVS), and Simultaneously Extractable Metals (SEM) of sediment and water sample data for the Kinnickinnic River Basin in the Milwaukee Estuary Area of Concern site analyzed by Eurofins Lancaster Laboratories Environmental, LLC in Lancaster, Pennsylvania. This report is a deliverable under Task 3 of the subject Task Order.

If you have any questions, please feel free to contact me.

Sincerely,

Shellee McGrath

Shellee McGrath
Task Leader, QATS Program
CB&I Federal Services LLC
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RELEASE OF VALIDATED DATA

DATE: October 27, 2015

SUBJECT: Review of Data for the Kinnickinnic River Mooring Basin in the Milwaukee Estuary Area of Concern Site
Received for Review: September 16, 2015 and October 19, 2015

LABORATORY: Eurofins Lancaster Laboratories Environmental

FROM: CB&I 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 completed review of the validated data for the following project:

SITE Name: Kinnickinnic River Mooring Basin in the Milwaukee Estuary Area of Concern Site

Contractor: CH2M Hill, Denver, CO

Primary Validators: CH2M Hill, Denver, CO

SDG Numbers: KIN01, KIN02, KIN03, KIN04, KIN05, KIN06, KIN07, KIN08, KIN09, KIN10, KIN11, KIN12, KIN13, KIN14, KIN15, and KIN16

Analytical Methods: Semivolatile (SW-846 8270D), Semivolatile-SIM (SW-846 8270-SIM), Aroclor (SW-846 8082A), Metals (SW-846 6010C and 6020A) and Mercury (SW-846 7471B and 7470A), Total Organic Carbon (TOC) (Lloyd Khan), Total Cyanide (SW-846 9012B), Acid Volatile Sulfide (AVS) (EPA-821-R-91-100), and Simultaneously Extractable Metals (SEM) (SW-846 6010C and 7471B)

Number and Type of Samples: 105 Sediment Samples and 1 Water Sample

VALIDATION SUMMARY

This report summarizes the data verification of previously validated analytical results from samples from the Kinnickinnic River Mooring Basin in the Milwaukee Estuary Area of Concern Site, in support of EPA's Great Lakes National Program Office (GLNPO). This evaluation and preparation of this report were performed by CB&I's Quality Assurance Technical Support Program (QATS) under Technical Direction 10, Task Order 4025.

One hundred five (105) sediment samples and one (1) water sample (equipment blank) in 16 SDGs (SDGs KIN01, KIN02, KIN03, KIN04, KIN05, KIN06, KIN07, KIN08, KIN09, KIN10, KIN11, KIN12, KIN13, KIN14, KIN15, and KIN16) were collected by CH2M Hill from the Kinnickinnic River Mooring Basin Site locations between May 11, 2015 and May 14, 2015, and shipped to Eurofins Lancaster Laboratory Environmental in Lancaster, Pennsylvania for analysis.

The initial data validation was performed by CH2M Hill in Denver, Colorado. Validation was performed on all samples, sample-related QC, and instrument-related QC as listed in the Data Quality Objectives Kinnickinnic River Mooring Basin, Milwaukee Estuary Area of Concern, Milwaukee, Wisconsin Site Characterization document. The National Functional Guidelines for Superfund Organic Methods Data Review, June 2008, and the National Functional Guidelines for Superfund Inorganic Methods Data Review, January 2010 were the guidance documents used by CH2M Hill in the original validation and by QATS in the subsequent validation/verification.

At the direction of EPA, CH2M Hill provided the validated data to QATS via the CH2M Hill Extranet System on September 16, 2015. The Electronic Data Deliverable (EDD) file was downloaded from the CH2M Hill Extranet System on September 24, 2015 for the data validation/verification checks. The Data Usability Report Kinnickinnic River Mooring Basin, Milwaukee Estuary Area of Concern was downloaded from the CH2M Hill site on October 19, 2015. QATS conducted a Tier 2 validation (without the full validation reports) on the 16 SDGs using the Tier 2 Validation Worksheets developed by QATS specifically for GLNPO validation. The resulting QATS qualifiers were compared to the CH2M Hill-applied qualifiers entered into the EDD file that was uploaded to the CH2M Hill Extranet System. The following issues were identified:

- For the metals and SEM fractions, the QATS validator added 45 "U" qualifiers to analytes associated with Initial and Continuing Calibration Blanks containing trace levels of those analytes. This is due to the difference between a Tier 1 and Tier 2 validation (or Stage 2a and 2b).

- Also in the metals fraction, the QATS validator observed that the CH2M Hill validators applied qualifiers for QC failures (MS/MSD and Duplicate Precision) to the parent sample only. The Inorganic NFG states that for QC analysis that does not meet the technical criteria, apply the action to all samples of the same matrix if the samples are considered sufficiently similar. CH2M Hill applied professional judgment in determining to qualify only the parent sample. According to the NFG this is acceptable.

- For the PAH-SIM fraction, all compounds were qualified when one or two of the three surrogate recoveries were outside of acceptance limits. The QATS validator removed 254 qualifiers from compounds that are not associated with the failing surrogate recoveries. These compounds are associated with acceptable surrogate recoveries. Also, 390 qualifiers assigned for surrogate failures were removed from compounds reported from dilution greater than 5X.

- Also for the PAH-SIM fraction, several original sample analyses were used by the original validators instead of using the re-extracted sample analyses that were outside of holding time. In the original analyses, at least one surrogate failed QC criteria low (some analyses reported all three surrogates failing QC criteria low). However, the surrogates were all within criteria for the re-extracted results and the sample concentrations were 2-5X higher than in the original analysis. The QATS validator determined that even though the samples were re-extracted out of hold time, because they are PAHs (higher molecular weight compounds are not affected by hold times as much as other lower molecular weight compounds), the re-extracted sample results were used because the surrogate recoveries and the sample results were much higher than the original sample results. Therefore, the "EX" was changed to "J" or "UJ" due to the holding time failures. For the original sample results, the "J" or "UJ" was changed to "EX". Fifteen samples were affected resulting in 1,138 qualifier changes.

- For the SEM fraction, numerous samples for SEM were prepped and analyzed outside of the holding time required in the QAPP. The SEM narratives state that metals were out of holding time and the client was notified. There was no communication records provided with the data to show the client's response, and an explanation was not provided in the Data Usability Report as to the absence of qualifiers. Therefore, 77 results exceeding method holding time requirement (14 days after AVS) are qualified "J" or "UJ". Note that mercury results also exceeded hold time, however, mercury results are already qualified "R" due to 0% recoveries of the MS/MSD and post spike samples.

- The SDG Numbers in the EDD for the AVS/SEM methods do not correspond to the SDG Numbers of the data packages.

- For the Wet Chemistry fraction, there were no TOC or Cyanide raw data provided in the data package for SDG KIN07. The QATS validator used data from the previous and subsequent data packages to validate the samples in SDG KIN07.

- For all of the laboratory duplicate samples in the EDD, the results reported are not corrected for percent solid/percent moisture. This is true for all the samples labeled either LR or DUP.

- Note that each result in the EDD file is duplicated; however, there is one labeled analysis and the other labeled prep in the "TEST_BATCH_TYPE" column. The CH2M Hill validator has qualified both rows with the validator qualifier and reason code; QATS has qualified the analysis row only. The second row is not included in the sample result count.

- Note that the alkylated PAHs in the samples were quantitated using a response factor (RF) derived from a representative target compound which has been specifically identified for that homolog series. The response from that compound is assumed to represent the RF for the homolog series. Quantitation procedures are performed on alkylated PAHs using this quantitation procedure because analytical grade standards are not commercially available for all of the Alkyl homologs. Because high levels of alkylated PAHs were observed in numerous samples, the procedure used by the laboratory to quantitate the alkylated PAHs using the response factor for a representative target compound is more accurate than reporting the alkylated compounds as tentatively identified compounds (TICs) using a RF of 1.0.

Data validation and verification were performed on 12,734 sample results from 985 analyses of the 106 total project samples. Of the 12,734 analytical results, 10,773 originally-validated analytical results and qualifiers were verified to be correct. Revisions were required for 1,961 of the 12,734 result qualifiers (15%). The revisions performed by the QATS validators included editing, adding, or removing select qualifiers from the validated data.

A summary of the QATS-revised data qualifiers by SDG and fraction was prepared and is presented in tabular form in the next fifteen pages of this report. Changes to the qualifiers were also applied to the EDD file. Changes to the EDD file that accompany this report are highlighted in blue.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
KIN01 Metals	Nickel	None	J	SD-006-6.5-7.5	The laboratory duplicate exceeded criteria for Nickel. Although the sample and duplicate results are less than 5x the reporting limit, the absolute difference between the two results is greater than the allowed control limit. The NFG states, "A control limit of the CRQL shall be used if either the sample or duplicate value is < 5x the CRQL". In this case the absolute difference between the sample and duplicate is greater than 2x the reporting limit (per NFG: 2x the reporting limit is allowed for solid samples).
KIN01 Metals	Selenium	J	U	SD-006-0.0/0.5 SD-006-0.5/1.5 SD-006-1.5/2.5 SD-006-2.5/3.5 SD-006-3.5/4.5 SD-006-6.5/7.5 SD-007-0.0/0.5 SD-007-0.5/1.5 SD-007-1.5/2.5 SD-007-2.5/3.5 SD-007-3.5/4.0 SD-008-0.0/0.5 SD-008-0.5/1.5 SD-008-0.5/1.5-FD SD-008-2.5/3.5 SD-008-3.5/4.6 SD-008-4.6/5.3	Trace levels of selenium between the IDL and CRQL were detected in the ICB. The levels detected in the samples were less than 5x the concentration observed in the ICB.
KIN01 PAH	Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Phenanthrenes/anthracenes C3-Fluoranthrenes/pyrenes Chrysene Dibenz(a,h)anthracene Fluoranthene Indeno(1,2,3-cd)pyrene Perylene	None	J	SD-008-0.5/1.5 SD-008-0.5/1.5-FD	The RPD between the original sample results and field duplicate results are greater than 100%. Therefore, the QATS validator assigned "J" qualifiers to the sample results.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	Pyrene				
KIN01 PAH	Pyrene	None	J	SD-006-5.5/6.5 SD-006-7.5/8.0	The associated sample results are qualified "J" for continuing calibration exceeding 20% D criteria.
KIN01 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Naphthalenes Dibenz(a,h)anthracene Fluorene Perylene	J	None	SD-006-1.5/2.5	One of the three surrogates exceeded the upper %R QC limit; however, all the reported compounds from this sample were qualified "J" with a reason code of "SSH" – "Surrogate recovery greater than upper limit." All of the compounds associated with the high surrogate recovery were reported from the diluted sample; therefore, because it was a diluted sample greater than 5X, the QATS validator removed the "J" qualifiers.
KIN02 SEM	Cadmium Copper Lead Nickel Silver Zinc	None	J or UJ	SD-008-4.6/5.3 SD-006-7.5/8.0	Samples for SEM were prepped and analyzed outside of the holding time required in the QAPP. The SEM Narrative states that all metals were out of holding time and the client was notified. However, there is no communication provided to show the clients response, and there is no Data Usability Report explaining the absence of qualifiers. Therefore, results exceeding the method holding time requirement (14 days after AVS) are qualified "J" or "UJ".
KIN02 SEM	Zinc	None	J	SD-007-3.5/4.0 SD-008-0.0/0.5 SD-006-0.0/0.5 SD-006-2.5/3.5 SD-006-3.5/4.5 SD-006-4.5/5.5	Samples for SEM were prepped and analyzed outside of the holding time required in the QAPP. The SEM Narrative states that all metals were out of holding time and the client was notified. However, there is no communication provided to show the clients response and there is no Data Usability Report explaining the absence of qualifiers. Therefore, results exceeding the method holding time requirement (14 days after AVS) are qualified "J" or "UJ".
KIN02 SEM	Silver	None	UJ	SD-006-0.5/1.5	Samples for SEM were prepped and analyzed outside of the holding time required in the QAPP. The SEM Narrative states that all metals were out of holding time and the client was notified. However, there is no communication provided to show the clients response and there is

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
					no Data Usability Report explaining the absence of qualifiers. Therefore, results exceeding the method holding time requirement (14 days after AVS) are qualified "J" or "UJ".
KIN03 Total Cyanide	Total Cyanide	J	None	SD-009-5.5/6.5	The Total Cyanide results was qualified "J" in the EDD file with a reason code of "SSH" - Surrogate recovery greater than upper limit. Surrogates are not used in the analysis of Total Cyanide; therefore, the QATS validator removed the "J" qualifier.
KIN03 Metals	Arsenic	J	U	SD-005-3.5/4.5 SD-005-4.5/5.5	Trace levels of arsenic between the IDL and CRQL were detected in the CCBs. The levels detected in the samples were less than 5x the concentrations observed in the CCBs.
KIN03 PAH	Pyrene	None	J	SD-005-0.0/0.5	The associated sample is qualified for the continuing calibration %D exceeding 20% D criteria.
KIN03 PAH	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Indeno(1,2,3-cd)pyrene Perylene Pyrene	J	None	SD-005-1.5/2.5 SD-005-3.5/4.5 SD-005-4.5/5.5	One of the three surrogates exceeded the %R acceptance limit; however, all the reported compounds from this sample were qualified "J". The QATS validator removed the qualifiers from compounds associated with the two acceptable surrogate recoveries.
KIN03 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene	J/UJ	None	SD-009-2.5/3.5 SD-009-6.5/7.5	One of the three surrogates exceeded the %R acceptance limit; however, all the reported compounds from this sample were qualified "J". The QATS validator removed the qualifiers from compounds

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	Acenaphthylene Anthracene Benzo(a)anthracene Benzo(b)fluoranthene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Fluoranthene Fluorene Naphthalene Phenanthrene Pyrene				associated with the two acceptable surrogate recoveries.
KIN03 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes	EX	J	SD-005-2.5/3.5 (RE) SD-009-1.5/2.5 (RE) SD-009-7.5/8.5 (RE)	The original sample analysis resulted in a low surrogate recovery, which was qualified "J" by the original validators. The laboratory re-extracted and reanalyzed the sample (out of hold time). The three surrogates passed %R QC criteria in the re-extracted sample analysis, and the reported sample results were considerably higher than the original analysis. Therefore, the QATS validator determined the re-extracted results should be reported, and qualified "J" for exceeding hold time.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene				
KIN03 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes	J/UJ or None	EX	SD-005-2.5/3.5 SD-009-1.5/2.5 SD-009-7.5/8.5	The original sample analysis resulted in a low surrogate recovery, which was qualified "J" by the original validators. The laboratory re-extracted and reanalyzed the sample (out of hold time). The three surrogates passed %R QC criteria in the re-extracted sample analysis, and the reported results were considerably higher than the original analysis. Therefore, the QATS validator determined the re-extracted results should be reported and qualified "J" or "UJ" for hold time.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene				
KIN03 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene	EX	J/UJ	SD-009-5.5/6.5 (RE)	The original sample analysis resulted in two surrogate recoveries and two internal standards exceeding criteria (The sample results were qualified J by the original validators – reason code "SSH"). The laboratory reanalyzed the sample on the same date, and two internal standards exceeded criteria. The laboratory then re-extracted and reanalyzed the sample (out of hold time) with all surrogates and internal standards meeting QC criteria. Also, the sample results were higher than that reported in the original sample. Therefore, the QATS validator reported the re-extracted sample results and qualified all sample results "J" or "UJ" due to exceeding hold time.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene				
KIN03 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene	J/UJ	EX	SD-009-5.5/6.5	The original sample analysis resulted in two surrogate recoveries and two internal standards exceeding criteria. (The sample results were qualified J by the original validators – reason code "SSH"). The laboratory reanalyzed the sample on the same date, and two internal standards exceeded criteria. The laboratory then re-extracted and reanalyzed the sample (out of hold time) with all surrogates and internal standards meeting QC criteria. Also, the sample results were higher than reported in the original sample. Therefore, the QATS validator reported the re-extracted sample results and qualified all sample results "J" or "UJ" due to exceeding hold time.
KIN05 Metals	Selenium	J	U	SD-004-0.5/1.5	Trace levels of selenium between the IDL and CRQL were detected in the CCBs. The levels detected in the samples were less than 5x the concentrations observed in the CCBs.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
KIN05 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene	EX	J	SD-004-0.0/0.5 (RE) SD-004-0.5/1.5 (RE) SD-004-1.5/2.3 (RE) SD-004-1.5/2.3-FD(RE) SD-004B-0.5/1.5 (RE) SD-004B-1.5/3.8 (RE) SD-011-0.0/0.5 (RE) SD-011-0.5/1.5 (RE) SD-011-0.5/1.5-FD(RE) SD-011-1.5/2.5 (RE) SD-011-2.5/3.1 (RE)	The original sample analyses resulted in low surrogate recoveries and were qualified J or UJ by the original validators. The laboratory re-extracted and reanalyzed the samples (out of hold time) with the surrogates all passing criteria in the re-extracted sample analysis. Also, the results were considerably higher or comparable to the original analysis. Therefore, the QATS validator reported the re-extracted results and qualified "J" all sample results for hold time.
KIN05 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene	J/UJ or None	EX	SD-004-0.0/0.5 SD-004-0.5/1.5 SD-004-1.5/2.3 SD-004-1.5/2.3-FD SD-004B-0.5/1.5 SD-004B-1.5/3.8 SD-011-0.0/0.5 SD-011-0.5/1.5	The original sample analysis resulted in low surrogate recoveries which were qualified J or UJ by the original validators. The laboratory re-extracted and reran the sample (out of hold time) with the surrogates all passing criteria in the re-extracted sample analysis. Also, the results were higher or comparable to the original analysis. Therefore, the QATS validator reported the re-extracted results and qualified "J" all sample results for hold time.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene			SD-011-0.5/1.5-FD SD-011-1.5/2.5 SD-011-2.5/3.1	
KIN05 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)pyrene Benzo(e)pyrene Benzo(g,h,i)perylene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes	J/UJ	None	SD-011-3.1/4.0	One of the three surrogates exceeded the acceptance limit; however, all the reported compounds from this sample were qualified "J". The QATS validator removed the qualifiers from compounds associated with the two surrogates meeting QC criteria.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Dibenz(a,h)anthracene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene				
KIN06 Aroclor	PCB-1016	UJ	None	SD-013-3.5/4.5	PCB-1016 is qualified "UJ" with a reason code of "MSL" - "Matrix spike recovery criteria less than the lower limit". The QATS validator removed the "UJ" qualifier because the matrix spike and matrix spike duplicate recoveries were both greater than the upper control limit, and as a result non-detected results do not get qualified. In addition, the MS/MSD results in the EDD file for this sample are qualified "EX". The reason for this is unknown.
KIN06 PAH	Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Naphthalenes Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Perylene C4-Benzanthrene/chrysenes	J/UJ	None	SD-013-2.5/3.5	One of the three surrogates exceeded the acceptance limit; however, all the reported compounds from this sample were qualified "J". The QATS validator removed the qualifiers from compounds associated with the two surrogates meeting QC criteria.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	C4-Phenanthrenes/anthracenes				
KIN06 PAH	Benzo(a)pyrene Benzo(e)pyrene Benzo(g,h,i)perylene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Naphthalenes C4-Benzanthrene/chrysenes C4-Phenanthrenes/anthracenes Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene Perylene	J/UJ	None	SD-013-5.5/6.5	One of the three surrogates exceeded the acceptance limit; however, all the reported compounds from this sample were qualified "J". The QATS validator removed the qualifiers from compounds associated with the two surrogates meeting QC criteria.
KIN06 PAH	Pyrene	None	J	SD-013-6.5/7.5	The associated sample result is qualified "J" due to the compound in the continuing calibration failing %D criteria.
KIN07 Metals	Selenium	J	U	SD-001-0.0/0.5 SD-002-2.5/3.9 SD-002-2.5/3.9-FD SD-003-2.5/3.5 SD-003-3.5/4.5	Trace levels of selenium between the IDL and CRQL were detected in the ICB and CCB. The levels detected in the samples were less than 5x the concentrations observed in the ICB and/or associated CCB.
KIN07 Metals	Antimony	J	U	SD-013-9.5/10.5	Trace levels of antimony between the IDL and CRQL were detected in the associated CCB. The level detected in the sample was less than 5x the concentrations observed in the CCB.
KIN07 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene	J	None	SD-013-8.5/9.5 SD-013-9.5/10.5 SD-013-10.5/11.5 SD-002-0.0/0.5 SD-002-2.5/3.9-FD	All of the results were reported from either the 50x or 100x diluted analysis. In these samples, one or two of the three surrogate recoveries exceeded %D QC criteria. As a result, all of the reported compounds from the diluted samples were qualified "J" with a reason code of "SSH" – "Surrogate recovery greater than upper limit." Because the surrogates were diluted out in the 50x and 100x diluted samples, the QATS validator removed the qualifiers from all of the compounds.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene				
KIN07 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes	J	None	SD-003-0.5/1.5	All three surrogate recoveries were reported below the %D QC lower limit; and all of the reported compounds were qualified "J" or "UJ" with a reason code of "SSL" – "Surrogate recovery less than lower limit." Because the sample was analyzed at a 10x dilution and the surrogates were diluted out, the QATS validator removed all of the "J" qualifiers.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene				
KIN07 PAH	Fluoranthene Naphthalene	J	None	SD-003-3.5/4.5	The two listed compounds were reported from the 50X dilution and qualified "J" with a reason code of "SSL". Because the surrogates were diluted out in the 50x dilution, the QATS validator removed all of the "J" qualifiers.
KIN07 PAH	Benzo(a)anthracene Chrysene Fluoranthene Naphthalene Phenanthrene Pyrene	J	None	SD-003-4.5/5.6	The six listed compounds were reported from the 50X dilution and qualified "J" with a reason code of "SSH". Because the surrogates are diluted out in the 50x dilution, the QATS validator removed all of the "J" qualifiers.
KIN08 SEM	Cadmium Copper Lead Nickel Silver Zinc	None	J or UJ	SD-004-0.5/1.5 SD-004-1.5/2.3 SD-004-1.5/2.3-FD SD-004B-0.5/1.5 SD-004B-1.5/3.8 SD-011-0.0/0.5 SD-011-0.5/1.5 SD-011-0.5/1.5-FD SD-011-1.5/2.5 SD-011-2.5/3.1	Samples for SEM were prepped and analyzed outside of the holding time required in the QAPP. The SEM Narrative states that all metals analyses were out of holding time and the client was notified. However, there is no communication provided to show the clients response, and there is no Data Usability Report explaining the absence of qualifiers. Therefore, results exceeding the method holding time requirement (14 days after AVS) are qualified "J" or "UJ".
KIN08 SEM	Silver	None	U	SD-004B-0.5/1.5 SD-004B-1.5/3.8 SD-011-0.5/1.5 SD-011-0.5/1.5-FD	A trace level of silver between the IDL and CRQL was detected in the associated CCB. The level detected in the sample was less than 5x the concentrations observed in the CCB.
KIN11 Metals	Selenium	J	U	SD-010-0.0/0.5	Trace levels of selenium between the IDL and CRQL were detected in

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
				SD-010-1.5/2.5 SD-010-1.5/2.5-FD SD-010-2.5/3.5 SD-003-3.5/4.5	the ICB and CCB. The levels detected in the samples were less than 5x the concentrations observed in the ICB and/or associated CCB.
KIN11 Aroclor	Aroclor-1016 Aroclor-1221 Aroclor-1232 Aroclor-1242 Aroclor-1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor-1268	None	UJ	EB-001	The sample had low surrogate %R recoveries of DCB on both columns (48%, 45%), but were within criteria. However, the method blank failed the surrogate %D criteria for TCX and DCB on one column, and the LCS and LCSD DCB (only) failed on both columns. The NFG states, "In the special case of a blank analysis with surrogate %R outside the acceptance limits, give special consideration to qualify the associated sample data. The basic concern is whether the blank problems represent an isolated problem with the blank alone, or whether there is a fundamental problem with the analytical process. For example, if one or more samples in the same extraction batch have surrogate %R within the acceptance limits, use professional judgment to determine if the blank problem is an isolated occurrence." Since the LCS and LCSD had low recovery of DCB, the low surrogate recovery does not appear to be an isolated problem; therefore, the QATS validator qualified the non-detected results "UJ".
KIN13 PAH	1-Methylnaphthalene 2-Methylnaphthalene Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(e)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene C1-Benzanthrene/chrysenes C1-Fluoranthrenes/pyrenes C1-Fluorenes C1-Naphthalenes C1-Phenanthrenes/anthracenes C2-Benzanthrene/chrysenes C2-Fluoranthrenes/pyrenes C2-Fluorenes C2-Naphthalenes C2-Phenanthrenes/anthracenes C3-Benzanthrene/chrysenes C3-Fluoranthrenes/pyrenes C3-Fluorenes C3-Naphthalenes C3-Phenanthrenes/anthracenes	J/UJ	None	SD-012-1.5/2.5-FD SD-012-2.5/3.5 SD-012-9.5/10.5 SD-012-6.5/7.5 (minus Fluoranthene and Pyrene)	One or more of the three surrogate recoveries were outside of the %R QC criteria; however, all the reported results were from sample analyses with a dilution factor of ≥10. Because the surrogates were diluted out in the 10x sample, the QATS validator removed the "J" and "UJ" qualifiers associated with low surrogate recoveries.

DATA QUALIFICATION CHANGES SUMMARY TABLE

Fraction	Analyte/Compound	Original Qualifier	Revised Qualifier	EPA Sample ID	QATS Justification for EDD Revision
	C4-Benzanthrene/chrysenes C4-Naphthalenes C4-Phenanthrenes/anthracenes Chrysene Dibenz(a,h)anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)pyrene Naphthalene Perylene Phenanthrene Pyrene				
KIN13 PAH	Fluoranthene Naphthalene Pyrene	J	None	SD-012-7.5/8.5	One or more of the three surrogate recoveries were outside of the %R QC criteria; however, all the reported results were from sample analyses with a dilution factor of 50x. Because the surrogates were diluted out in the 50x sample, the QATS validator removed the "J" qualifiers associated with low surrogate recoveries.
KIN14 SEM	Silver	None	U	SD-012-3.5/4.5 SD-012-4.5/5.5 SD-012-5.5/6.5	Trace levels of silver between the IDL and CRQL were detected in the associated ICB. The levels detected in the samples were less than 5x the concentrations observed in the ICB.
KIN15 Metals	Selenium	J	U	TX-014-0.5/5.0 TX-010-0.0/0.5 TX-014-0.0/0.5 TX-012-0.0/0.5 TX-012-0.5/5.0	Trace levels of selenium between the IDL and CRQL were detected in the CCBs. The levels detected in the samples were less than 5x the concentrations observed in the associated CCB.
KIN15 Metals	Thallium	J	U	TX-014-0.5/5.0 TX-012-0.0/0.5 TX-012-0.5/5.0	Trace levels of thallium between the IDL and CRQL were detected in the ICB and CCBs. The levels detected in the samples were less than 5x the concentrations observed in the ICB and associated CCB.

Appendix B
Sediment Core Logs

PROJECT NUMBER: 658988	CORE NUMBER: SD-002	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 545.3 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 34.16 — START : 5/13/15 11:00 — END : 5/13/15 11:30 — LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 / 545.3	0.0				SILT - dark brown, very soft to soft, slightly plastic	PID: 0.0
					Hydrocarbon odor at 1.5' bss	PID: 1.3
		3.9	VC-1		SANDY SILT - dark brown, dense, non plastic	PID: 0.0
					End of Vibracore Recovery at 3.9' bss	
5 / 540.3						
	6.0					
					Samples Collected:	
					KKMB-SD-002-0.0/0.5 KKMB-SD-002-0.5/1.5 KKMB-SD-002-1.5/2.5 KKMB-SD-002-1.5/2.5-FD KKMB-SD-002-2.5/3.9 KKMB-SD-002-2.5/3.9-FD	
10						

PROJECT NUMBER: 658988	CORE NUMBER: SD-003 SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 546.8 ft — NATIVE CLAY ELEVATION : 541.2 ft

WATER DEPTH : 33.00 — START : 5/14/15 12:00 — END : 5/14/15 12:30 — LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 546.8	0.0				SILT - dark brown, very soft to soft, slightly plastic	PID: 0.8
					FINE & MEDIUM SAND - gray, medium dense	
		5.9	VC-1		SILT - dark brown, very soft to soft, slightly plastic	
5 541.8						
					LEAN CLAY - olive gray, very stiff	
					End of Vibracore Recovery at 5.9' bss	
	7.0					
					Samples Collected:	
					KKMB-SD-003-0.0/0.5 KKMB-SD-003-0.5/1.5 KKMB-SD-003-1.5/2.5 KKMB-SD-003-2.5/3.5 KKMB-SD-003-3.5/4.5 KKMB-SD-003-4.5/5.6 KKMB-SD-003-5.6/5.9 (Native)	
10						

PROJECT NUMBER:	CORE NUMBER:
658988	SD-004 SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 551.6 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 28.00 — START : 5/13/15 16:35 — END : 5/13/15 17:00 — LOGGER : SAM

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 / 551.6	0.0				SILT - dark brown, trace sand, significant organics (shells & woody debris)	PID: 0.0
					SILT - dark brown, very soft, trace sand, little organic matter	
					SAA, soft	
					End of Vibracore Recovery at 2.3' bss	
		2.3	VC-1			
5 / 546.6						
	5.8					
					Samples Collected:	
					KKMB-SD-004-0.0/0.5 KKMB-SD-004-0.5/1.5 KKMB-SD-004-0.5/1.5-FD KKMB-SD-004-1.5/2.3	
10						

PROJECT NUMBER: 658988	CORE NUMBER: SD-004B	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 551.6 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 28.00 — START : 5/13/15 17:15 — END : 5/13/15 17:45 — LOGGER : SAM

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 551.6	0.0				No Recovery 0'-0.5'	PID: 0.0
					LEAN CLAY - dark brown, very soft, trace silt, some organic matter (shells)	
		3.8	VC-1		LEAN CLAY - dark brown, soft	
					End of Vibracore Recovery at 3.8' bss	
5 546.6						
	5.5					
					Samples Collected:	
					KKMB-SD-004B-0.5/1.5 KKMB-SD-004B-1.5/3.8	
10						

PROJECT NUMBER: 658988	CORE NUMBER: SD-005	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin | LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore | DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 549.7 ft | NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 29.83 | START : 5/13/15 11:15 | END : 5/13/15 11:40 | LOGGER : SAM

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 549.7	0.0				SILT - very soft, non plastic Zebra mussel shells from 0.0-1.5'	PID: 0.0
					SANDY SILT - dark brown, soft, with wood debris, fuel-like odor	
		6.4	VC-1		FINE SAND - brown, medium dense	
5 544.7					LEAN CLAY - dark gray, soft	
					SILT - dark brown to brown, trace fine sand, stiff, slight decompositioning odor, few fine shell fragments throughout	
					End of Vibracore Recovery at 6.4' bss Samples Collected:	
	8.5				KKMB-SD-005-0.0/0.5 KKMB-SD-005-0.5/1.5 KKMB-SD-005-1.5/2.5 KKMB-SD-005-2.5/3.5 KKMB-SD-005-3.5/4.5 KKMB-SD-005-4.5/5.5 KKMB-SD-005-5.5/6.4 (MS/MSD)	
10						

PROJECT NUMBER: 658988	CORE NUMBER: SD-006	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin
LOCATION Milwaukee, WI
DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore
DRILLING CONTRACTOR : CH2M Hill
SEDIMENT ELEVATION : 552.3 ft
NATIVE CLAY ELEVATION : N/A
WATER DEPTH : 27.20
START : 5/11/15 17:23
END : 5/11/15 18:10
LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 / 552.3	0.0	8.0	VC-1		SILT - dark brown, very soft, non plastic Zebra muscles from 0.0-0.6'	PID: 0.0
5 / 547.3					SANDY SILT - dark brown, fine to coarse sand, trace gravel	
					SILTY SAND - brown, fine to coarse sand, with fine to coarse gravel, trace clay lenses	
					End of Vibracore Recovery at 8.0' bss	
	9.3					
10 / 542.3					Samples Collected:	
					KKMB-SD-006-0.0/0.5 KKMB-SD-006-0.5/1.5 KKMB-SD-006-1.5/2.5 KKMB-SD-006-1.5/2.5-FD KKMB-SD-006-2.5/3.5 KKMB-SD-006-3.5/4.5 KKMB-SD-006-4.5/5.5 KKMB-SD-006-5.5/6.5 KKMB-SD-006-6.5/7.5 (MS/MSD) KKMB-SD-006-7.5/8.0	
15						

PROJECT NUMBER:	CORE NUMBER:
658988	SD-007 SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin
LOCATION Milwaukee, WI
DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore
DRILLING CONTRACTOR : CH2M Hill
SEDIMENT ELEVATION : 552.7 ft
NATIVE CLAY ELEVATION : N/A
WATER DEPTH : 26.83
START : 5/11/15 13:35
END : 5/11/15 14:15
LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 552.7	0.0	4.0	VC-1		SILT - dark brown, very soft to soft Zebra mussel shells from 0.0-0.8' bss	PID: 0.0
					SAA, trace wood debris from 2.5-3.5'	
					End of Vibracore Recovery at 4.0' bss	
	4.5					
5 547.7						
					Samples Collected:	
					KKMB-SD-007-0.0/0.5 KKMB-SD-007-0.5/1.5 KKMB-SD-007-1.5/2.5 KKMB-SD-007-2.5/3.5 KKMB-SD-007-3.5/4.0	
10						

PROJECT NUMBER:	CORE NUMBER:
658988	SD-008 SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 551.5 ft — NATIVE CLAY ELEVATION : 546.9 ft

WATER DEPTH : 28.00 — START : 5/11/15 16:18 — END : 5/11/15 16:50 — LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 551.5	0.0	5.3	VC-1		SILT - dark brown, very soft to soft consistency increases with depth	PID: 0.0
					LEAN CLAY - grayish brown, some fine sand, stiff	
5 546.5	5.5				End of Vibracore Recovery at 5.3' bss	
					Samples Collected: KKMB-SD-008-0.0/0.5 KKMB-SD-008-0.5/1.5 KKMB-SD-008-0.5/1.5-FD KKMB-SD-008-1.5/2.5 KKMB-SD-008-2.5/3.5 KKMB-SD-008-3.5/4.6 KKMB-SD-008-4.6/5.3 (Native)	
10						

PROJECT NUMBER: 658988	CORE NUMBER: SD-009	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 549.7 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 29.83 — START : 5/11/15 12:10 — END : 5/11/15 13:20 — LOGGER : SAM

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 / 549.7	0.0				SILT - dark brown, very soft, wet, trace fine sand, trace wood debris	PID: 1.3
					Fuel-like odor from 2-6'	PID: 2.9
					Wet pieces from 3.5-5.5'	PID: 3.8
					SAA, medium gray	
5 / 544.7						PID: 2.2
		11.8	VC-1		SILTY FINE SAND - light brown, loose	PID: 2.5
					SANDY SILT - dark brown, soft, some wood chunks, trace small shells, fuel-like odor	PID: 1.6 PID: 1.0
					SILTY SAND - light brown, dense	
10 / 539.7						
	11.8				End of Vibracore Recovery at 11.8' bss	
					Samples Collected:	
15 / 534.7					KKMB-SD-009-0.0/0.5 KKMB-SD-009-0.5/1.5 KKMB-SD-009-1.5/2.5 KKMB-SD-009-1.5/2.5-FD KKMB-SD-009-2.5/3.5 KKMB-SD-009-3.5/4.5 KKMB-SD-009-4.5/5.5 KKMB-SD-009-5.5/6.5 KKMB-SD-009-6.5/7.5 KKMB-SD-009-7.5/8.5 KKMB-SD-009-8.5/9.5 KKMB-SD-009-9.5/10.5 KKMB-SD-009-10.5/11.8	
20						

PROJECT NUMBER: 658988	CORE NUMBER: SD-009B	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 549.7 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 29.83 — START : 5/13/15 14:30 — END : 5/13/15 14:45 — LOGGER : SAM

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 / 549.7	0.0			SILT - dark brown to black, very soft, non plastic, trace fine sand, trace wood debris and coal pieces, fuel-like odor	PID: 0.3 PID: 2.0 PID: 2.2 PID: 3.3 PID: 4.5
5 / 544.7		9.7	VC-1		PID: 2.8
				SILT - medium gray, soft, non plastic	
				SAA, dark brown to black, very soft, trace sand and wood debris, some gray mottling	
				SAA, medium gray, soft, slightly plastic	
				SILTY SAND - light brown, dense Wet from 9.3-9.7'	
10 / 539.7	10.0			End of Vibracore Recovery at 9.7' bss Samples Collected:	
				None	
15					

PROJECT NUMBER:	CORE NUMBER:
658988	SD-010 SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 551.7 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 28.10 — START : 5/14/15 15:15 — END : 5/14/15 15:40 — LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 551.7	0.0	5.0	VC-1		SILT - dark brown, very soft to soft, slightly plastic	PID: 0.0 entire core
5 546.7	5.0				End of Vibracore Recovery at 5.0' bss	
					Samples Collected:	
					KKMB-SD-010-0.0/0.5 KKMB-SD-010-0.5/1.5 KKMB-SD-010-1.5/2.5 KKMB-SD-010-1.5/2.5-FD KKMB-SD-010-2.5/3.5 KKMB-SD-010-2.5/3.9 (MS/MSD) KKMB-SD-010-3.5/5.0	
10						

PROJECT NUMBER:	CORE NUMBER:	
658988	SD-011	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 551.0 ft — NATIVE CLAY ELEVATION : 547.9 ft

WATER DEPTH : 28.66 — START : 5/13/15 17:50 — END : 5/13/15 18:50 — LOGGER : SAM

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 551.0	0.0				SILT - dark brown, very soft, wet, trace sand, trace organics (shells), some large coal debris	PID: 0.0 entire core
					SILT - dark brown, very soft, trace sand, trace organics (shells)	
					LEAN CLAY - medium gray	
		4.0	VC-1		End of Vibracore Recovery at 4.0' bss	
5 546.0						
	8.0				Samples Collected:	
					KKMB-SD-011-0.0/0.5 KKMB-SD-011-0.5/1.5 KKMB-SD-011-0.5/1.5-FD KKMB-SD-011-1.5/2.5 KKMB-SD-011-2.5/3.1 KKMB-SD-011-3.1/4.0 (Native)	
10						

PROJECT NUMBER: 658988	CORE NUMBER: SD-012	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

SEDIMENT ELEVATION : 552.8 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 27.00 — START : 5/14/15 16:50 — END : 5/14/15 17:50 — LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 / 552.8	0.0				SILT - dark brown, soft Wood debris from 0-1.0'	PID: 0.0 entire core
5 / 547.8		12.2	VC-1		Slight odor from 5.5-7.5'	
10 / 542.8					LEAN CLAY - tan, soft	
	11.5				SILT - dark brown, soft	
					End of Vibracore Recovery at 12.2' bss	
					Samples Collected:	
15 / 537.8					KKMB-SD-012-0.0/0.5 KKMB-SD-012-0.5/1.5 KKMB-SD-012-1.5/2.5 KKMB-SD-012-1.5/2.5-FD KKMB-SD-012-2.5/3.5 KKMB-SD-012-3.5/4.5 KKMB-SD-012-4.5/5.5 (MS/MSD) KKMB-SD-012-5.5/6.5 KKMB-SD-012-6.5/7.5 KKMB-SD-012-7.5/8.5 KKMB-SD-012-8.5/9.5 KKMB-SD-012-9.5/10.5 KKMB-SD-012-10.5/12.2	
20						

PROJECT NUMBER: 658988	CORE NUMBER: SD-013	SHEET 1 OF 1

SEDIMENT CORE LOG

PROJECT : KK River Mooring Basin — LOCATION Milwaukee, WI

DRILLING EQUIPMENT AND METHOD : R/V Mudpuppy II, vibracore — DRILLING CONTRACTOR : CH2M Hill

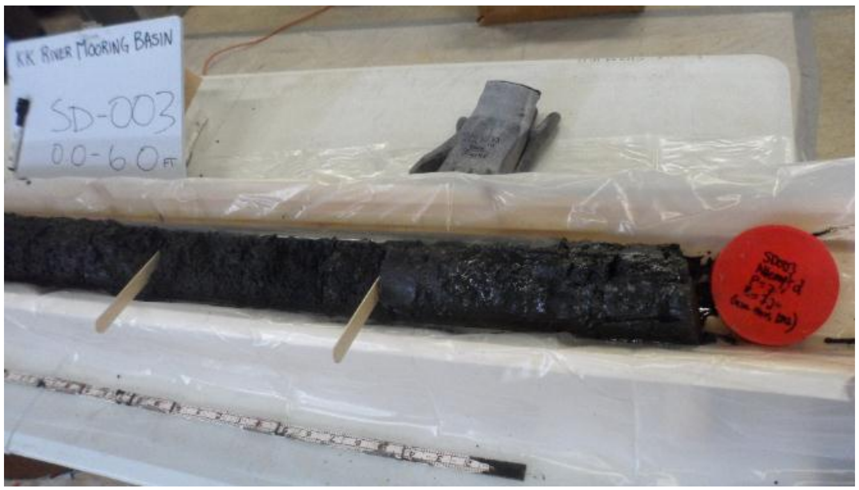
SEDIMENT ELEVATION : 554.6 ft — NATIVE CLAY ELEVATION : N/A

WATER DEPTH : 24.90 — START : 5/13/15 09:10 — END : 5/13/15 10:15 — LOGGER : HJR

DEPTH BELOW TOP OF SEDIMENT (ft)	PENETRATION (ft)	RECOVERY (ft)	CORE TYPE	SYMBOLIC LOG	SOIL DESCRIPTION: SEDIMENT TEXTURE, COLOR, RELATIVE DENSITY OR CONSISTENCY, & SOIL STRUCTURE	COMMENTS: PID READING, SAMPLE ID, QA/QC, ETC.
0 / 554.6	0.0				SILT - dark brown, very soft to soft, slightly plastic	PID: 0.0
5 / 549.6						
		13.0	VC-1			PID: 1.7
					SAA, NAPL-like odor	PID: 2.1
						PID: 3.1
						PID: 1.8
					SAA, no odor	
10 / 544.6						PID: 0.0
	12.5					
					End of Vibracore Recovery at 13.0' bss	
					Samples Collected:	
15 / 539.6					KKMB-SD-013-0.0/0.5 KKMB-SD-013-0.5/1.5 KKMB-SD-013-0.5/1.5-FD KKMB-SD-013-1.5/2.5 KKMB-SD-013-2.5/3.5 KKMB-SD-013-3.5/4.5 (MS/MSD) KKMB-SD-013-4.5/5.5 KKMB-SD-013-5.5/6.5 KKMB-SD-013-6.5/7.5 KKMB-SD-013-7.5/8.5 KKMB-SD-013-8.5/9.5 KKMB-SD-013-9.5/10.5 KKMB-SD-013-10.5/11.5 KKMB-SD-013-11.5/13.0	
20						

Appendix C
Photograph Log

Photograph 1: KKMB-SD002-0.0’/3.9’



Photograph 2: KKMB-SD003

Photograph 3: KKMB-SD003

Photograph 4: KKMB-SD003 – Native clay observed

Photograph 5: KKMB-SD004-0.0’/2.3’: first core

Photograph 6: KKMB-SD004-0.0’/3.8’: second core

Photograph 7: KKMB-SD005-0.0’/3.5’

Photograph 8: KKMB-SD005-3.5’/6.4’

Photograph 9: KKMB-SD00600.0'/3.0': top of core

Photograph 11: KKMB-SD006-5.7'/8.0'

Photograph 10: KKMB-SD006-3.0'/5.7'

Photograph 12: KKMB-SD007


Photograph 13: KKMB-SD008-0.0'/5.3'

Photograph 14: KKMB-SD008-0.0'/5.3'

Photograph 15: KKMB-SD009-0.0'/3.0'

Photograph 16: KKMB-SD009-3.0'/6.0'

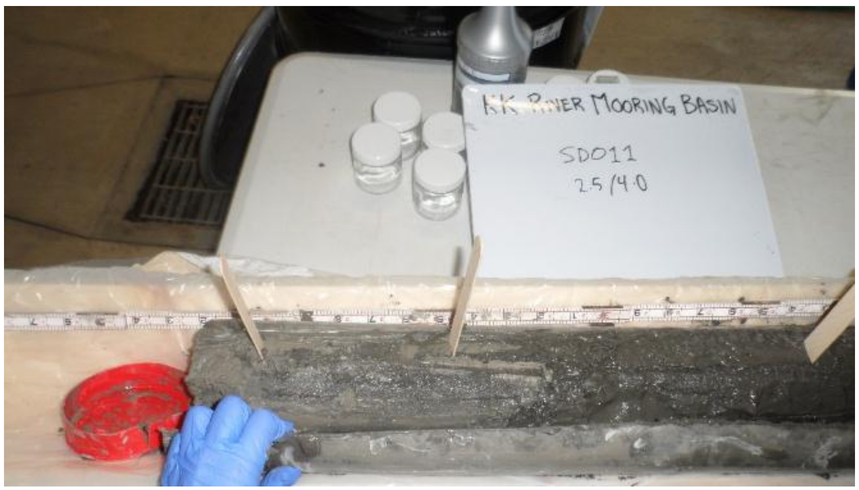
Photograph 17: KKMB-SD009-6.0'/8.5'

Photograph 18: KKMB-SD009-8.5'/11.8'


Photograph 19: KKMB-SD010-0.0'/2.0'


Photograph 20: KKMB-SD010-2.0'/5.0'

Photograph 21: KKMB-SD011-0.0'/2.5'



Photograph 22: KKMB-SD011-2.5'/4.0' – Native clay observed

Photograph 23: KKMB-SD012-0.0'/6.2'

Photograph 24: KKMB-SD012-6.2'/12.2

Photograph 25: KKMB-SD013-0.0'/3.0'

Photograph 26: KKMB-SD013-3.0'/6.0'

Photograph 27: KKMB-SD013-6.0'/13.0'

Appendix D
Investigative Derived Waste Results and Waste Manifest

Table F-1. Investigative Derived Waste Analytical Profile Summary
Kinnickinnic River Mooring Basin Site Characterization

Analyte	Units	CAS Number	WD-001 6/27/2013
pH	pH Units	N/A	7.5
Flashpoint	ºF	N/A	>140
Percent Moisture	%	N/A	42.7
Polychlorinated Biphenyls			
PCB-1016	mg/Kg	12674-11-2	0.029 U
PCB-1221	mg/Kg	11104-28-2	0.029 U
PCB-1232	mg/Kg	11141-16-5	0.029 U
PCB-1242	mg/Kg	53469-21-9	0.029 U
PCB-1248	mg/Kg	12672-29-6	0.47
PCB-1254	mg/Kg	11097-69-1	0.26
PCB-1260	mg/Kg	11096-82-5	0.029 U
PCB-1262	mg/Kg	37324-23-5	0.029 U
PCB-1268	mg/Kg	11100-14-4	0.029 U
Total PCBs	mg/Kg	N/A	0.073
TCLP Metals			
Arsenic	mg/L	7440-38-2	0.0356 J
Barium	mg/L	7440-39-3	0.47
Cadmium	mg/L	7440-43-9	.0097 J
Chromium	mg/L	7440-47-3	.0025 J
Lead	mg/L	7439-92-1	0.0098 J
Mercury	mg/L	7439-97-6	0.00020 U
Selenium	mg/L	7782-49-2	0.0400 U
Silver	mg/L	7440-22-4	0.0400 U
TCLP Herbicides			
2,4-D	mg/L	94-75-7	0.050 U
Silvex (2,4,5-TP)	mg/L	93-72-1	0.0050 U
TCLP Pesticides			
gamma-BHC (Lindane)	mg/L	58-89-9	0.000017 U
Alpha Chlordane	mg/L	5103-71-9	0.000017 U
Chlordane	mg/L	57-74-9	0.00083 U
Gamma Chlordane	mg/L	5103-74-2	0.000033 U
Endrin	mg/L	72-20-8	0.000033 U
Heptachlor	mg/L	76-44-8	0.000017 U
Heptachlor epoxide	mg/L	1024-57-3	0.000017 U
Methoxychlor	mg/L	72-43-5	0.00017 U
Toxaphene	mg/L	8001-35-2	0.0017 U
TCLP VOCs			
Benzene	mg/L	71-43-2	0.020 U
2-Butanone (MEK)	mg/L	78-93-3	0.20 U
Carbon tetrachloride	mg/L	56-23-5	0.020 U
Chlorobenzene	mg/L	108-90-7	0.020 U
Chloroform	mg/L	67-66-3	0.020 U
1,1-Dichloroethene	mg/L	75-35-4	0.10 U

Table F-1. Investigative Derived Waste Analytical Profile Summary
Kinnickinnic River Mooring Basin Site Characterization

Analyte	Units	CAS Number	WD-001 6/27/2013
1,2-Dichloroethane	mg/L	107-06-2	0.020 U
1,1-Dichloroethene	mg/L	75-35-4	0.020 U
Tetrachloroethene	mg/L	127-18-4	0.020 U
Trichloroethene	mg/L	79-01-6	0.020 U
Vinyl chloride	mg/L	75-01-4	0.020 U
TCLP SVOCs			
2,4-Dinitrotoluene	mg/L	121-14-2	0.025 U
Hexachlorobenzene	mg/L	118-74-1	0.003 U
Hexachlorobutadiene	mg/L	87-68-3	0.005 U
Hexachloroethane	mg/L	67-72-1	0.025 U
2-Methylphenol	mg/L	95-48-7	0.005 U
4-Methylphenol	mg/L	106-44-5	0.005 U
3-Methylphenol[a]	mg/L	108-39-4	--
Nitrobenzene	mg/L	98-95-3	0.025 U
Pentachlorophenol	mg/L	87-86-5	0.025 U
Pyridine	mg/L	110-86-1	0.025 U
2,4,5-Trichlorophenol	mg/L	95-95-4	0.005 U
2,4,6-Trichlorophenol	mg/L	88-06-2	0.005 U

Notes:

[a] 3-Methylphenol and 4-methylphenol cannot be resolved under the chromatographic conditions used for sample analysis. The result reported for 4-methylphenol represents the combined total of both compounds.

mg/Kg = milligrams per kilogram; mg/L = milligrams per liter

B: Compound was found in the blank and sample.

J: Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate valu

U: Indicates the analyte was analyzed for but not detected.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

NON-HAZARDOUS WASTE MANIFEST

1. Generator ID Number

2. Page 1 of

3. Emergency Response Phone: 00 4 4 ... 00

4. Waste Tracking Number: 7

5. Generator's Name and Mailing Address

US EPA
Kinnickinnic River Mooring Basin
Milwaukee WI 53207

Generator's Phone:

Generator's Site Address (if different than mailing address)

6. Transporter 1 Company Name: Badger Disposal of WI, Inc

U.S. EPA ID Number: W I D 9 8 8 5 8 0 0 5 6

7. Transporter 2 Company Name

U.S. EPA ID Number

8. Designated Facility Name and Site Address

Badger Disposal of WI, Inc
5611 West Hemlock Street
Milwaukee WI 53223

Facility's Phone: 414 760 0476

U.S. EPA ID Number: W I ... 0 0 5 6

9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers No.	10. Containers Type	11. Total Quantity	12. Unit Wt./Vol.	
	1. Non-regulated material	1	DF	110	G	NONE
	2.					
	3.					
	4.					

13. Special Handling Instructions and Additional Information

1)WS041137 Non Hazardous IDW Soil and P ... merger ...

14. **GENERATOR'S CERTIFICATION:** I certify the materials described above on this manifest are not subject to federal regulations for reporting proper disposal of Hazardous Waste.

Generator's/Offeror's Printed/Typed Name | Signature | Month | Day | Year

15. International Shipments ☐ Import to U.S. ☐ Export from U.S. Port of entry

Transporter signature (for exports only): Date leaving

16. Transporter Acknowledgment of Receipt of Materials

Transporter 1 Printed/Typed Name: [illegible] | Signature | Month | Day | Year

Transporter 2 Printed/Typed Name | Signature | Month | Day | Year

17. Discrepancy

17a. Discrepancy Indication Space ☐ Quantity ☐ Type ☐ Residue ☐ Partial Rejection ☐ Full Rejection

Manifest Reference Number:

17b. Alternate Facility (or Generator) | U.S. EPA ID Number

Facility's Phone:

17c. Signature of Alternate Facility (or Generator) | Month | Day | Year

18. Designated Facility Owner or Operator: Certification of receipt of materials covered by the manifest except as noted in Item 17a

Printed/Typed Name | Signature | Month | Day | Year

GENERATOR | INT'L | TRANSPORTER | DESIGNATED FACILITY

6-NHM-C-C-11

6-GENERATOR'S INITIAL COPY

Appendix E
Analytical Data

Table E-1. Analytical Results for Organics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-001	KKMB-SD-002	KKMB-SD-002	KKMB-SD-002	KKMB-SD-002	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-003	KKMB-SD-004	KKMB-SD-004	KKMB-SD-004	KKMB-SD-004	KKMB-SD-004	KKMB-SD-005
			SD-001-0.0/0.5	SD-002-0.0/0.5	SD-002-0.5/1.5	SD-002-1.5/2.5	SD-002-2.5/3.9	SD-003-0.0/0.5	SD-003-0.5/1.5	SD-003-1.5/2.5	SD-003-2.5/3.5	SD-003-3.5/4.5	SD-003-4.5/5.6	SD-003-5.6/5.9	SD-004-0.0/0.5	SD-004-0.5/1.5	SD-004-1.5/2.3	SD-004B-0.5/1.5	SD-004B-1.5/3.8	SD-005-0.0/0.5
			5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/14/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015	5/13/2015
Polychlorinated Biphenyls																				
Aroclor 1016	12674-11-2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028 U	0.03 UJ	0.028 U	0.029 U	0.029 U	-
Aroclor 1221	11104-28-2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028 U	0.03 UJ	0.028 U	0.029 U	0.029 U	-
Aroclor 1232	11141-16-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028 U	0.03 UJ	0.028 U	0.029 U	0.029 U	-
Aroclor 1242	53469-21-9	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028 U	0.03 UJ	0.028 U	0.029 U	0.029 U	-
Aroclor 1248	12672-29-6	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.047	0.027 J	0.028 U	0.029 U	0.029 U	-
Aroclor 1254	11097-69-1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028	0.015 J	0.028 U	0.029 U	0.029 U	-
Aroclor 1260	096-82-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028 U	0.03 UJ	0.028 U	0.029 U	0.029 U	-
Aroclor 1262	37324-23-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028 U	0.03 UJ	0.028 U	0.029 U	0.029 U	-
Aroclor 1268	11100-14-4	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.028 U	0.03 UJ	0.028 U	0.029 U	0.029 U	-
Total PCBs[1]	87-86-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	0.075	0.042	0.014 U	0.015 U	0.015 U	-
Wet Chemistry																				
Total Organic Carbon	-	mg/kg	70500	97300	78100	73100	53900	46700	74000	57600	19900	45500	67600	23200	23700	32000	26000	30000	32100	46100
Moisture, percent	-	%	49.5	47.7	46.6	47.9	39.7	45.2	48.2	42.9	29	36.1	45.1	39.2	39.9	43.2	40.2	41.2	41.5	51.8
Semivolatile Organic Compounds																				
1-Methylnaphthalene	90-12-0	µg/kg	20	1000 J	620	300	460	770	93 J	330	320	590	730	21	12 J	15 UJ	2.8 UJ	2.8 UJ	5 J	78
2-Methylnaphthalene	91-57-6	µg/kg	32	1800 J	1200	600	960	1600	160 J	700	660	1200	1600	32	17 J	7.5 J	2.8 UJ	2.8 UJ	8.1 J	150
Acenaphthene	83-32-9	µg/kg	17	1000 J	620	330	680	1000	130 J	360	360	750	1000	100	16 J	15 UJ	2.8 UJ	2.8 UJ	2.4 J	81
Acenaphthylene	208-96-8	µg/kg	39	2100 J	1400	570	740	1500	260 J	450	420	800	1400	15	11 J	6.2 J	2.8 UJ	2.8 UJ	2.8 UJ	180
Anthracene	120-12-7	µg/kg	53	4700 J	2800	1000	1900	2400	400 J	930	910	1700	2800	97	37 J	11 J	2.8 UJ	1.5 J	3.3 J	250
Benzo(a)anthracene	56-55-3	µg/kg	130	8800 J	6800	2600	3700	6000	1200 J	2100	2000	3900	7700 J	72	55 J	41 J	1.7 J	5.2 J	1.3 J	930
Benzo(a)pyrene	50-32-8	µg/kg	150	7000 J	5300	2300	2800	5000	1000 J	1700	1600	2900	5300	37	63 J	52 J	2.2 J	5.8 J	1.6 J	1000
Benzo(b)fluoranthene	205-99-2	µg/kg	200	5800 J	5500	2300	2600	4800	1000 J	1500	1400	3500	5400	42	74 J	56 J	2.4 J	6.7 J	3.1 J	1000
Benzo(e)pyrene	192-97-2	µg/kg	120	4600 J	3700	1600	1800	3400	660 J	1100	980	1800	3100	28	55 J	43 J	1.7 J	4.4 J	1.2 J	770
Benzo(g,h,i)perylene	191-24-2	µg/kg	120	3500 J	2800	1200	1400	2600	510 J	970	830	1700	2900	26	52 J	46 J	1.9 J	4.7 J	1.5 J	770
Benzo(k)fluoranthene	207-08-9	µg/kg	150	7200 J	4900	2100	2800	4800	900 J	1700	1500	2400	4600	36	58 J	55 J	1.8 J	5.2 J	3.1 J	940
C1-Benzanthrene/chrysenes	-	µg/kg	89	6600 J	5000	2100	2300	4200	690 J	1300	1100	2000	3600	38	55 J	26 J	1.8 J	3.4 J	2.8 UJ	700
C1-Fluoranthenes/Pyrenes	-	µg/kg	180	14000 J	10000	4400	5200	8200	1600 J	3000	2700	5300	8800	180	91 J	47 J	2.8 J	6.4 J	1.7 J	1600
C1-Fluorenes	-	µg/kg	15	1800 J	1300	450	930	790	200 J	340	270	440	720	41	14 J	15 UJ	2.8 UJ	2.8 UJ	2.8 UJ	140
C1-Naphthalenes	-	µg/kg	33	1700 J	1200	580	890	1500	160 J	640	610	1200	1500	34	18 J	7.3 J	1.1 J	2.8 UJ	8.3 J	150
C1-Phenanthrenes/anthracenes	-	µg/kg	77	7500 J	5500	2100	3200	3900	720 J	1500	1500	2700	4600	190	93 J	17 J	1.6 J	2.8 J	1.5 J	440
C2-Benzanthrene/chrysenes	-	µg/kg	46	3100 J	2100	1000	1100	1900	350 J	640	520	930	1500	20	39 J	13 J	2.8 UJ	2.8 UJ	2.8 UJ	320
C2-Fluoranthenes/Pyrenes	-	µg/kg	93	5800 J	4500	1800	2200	3700	660 J	1200	970	1700	3000	47	57 J	23 J	2.8 UJ	3 J	2.8 UJ	780
C2-Fluorenes	-	µg/kg	18	1700 J	1100	510	660	700	170 J	350	260	430	700	38	24 J	15 UJ	2.8 UJ	2.8 UJ	2.8 UJ	130
C2-Naphthalenes	-	µg/kg	37	2300 J	1500	670	960	1500	180 J	590	610	1400	1500	1000	39 J	7.7 J	1.3 J	2.8 UJ	3.3 J	270
C2-Phenanthrenes/anthracenes	-	µg/kg	72	7500 J	5200	2300	3000	4100	850 J	1500	1400	2400	3900	130	87 J	17 J	2.8 UJ	3.5 J	2.8 UJ	560
C3-Benzanthrene/chrysenes	-	µg/kg	34	1800 J	1500	670	720	1200	220 J	440	330	590	1000	17	18 J	15 UJ	2.8 UJ	2.8 UJ	2.8 UJ	170
C3-Fluoranthenes/Pyrenes	-	µg/kg	52	2800 J	2700	1100	1200	2000	340 J	740	540	890	1300	27	42 J	11 J	2.8 UJ	2.8 UJ	2.8 UJ	390
C3-Fluorenes	-	µg/kg	35	2100 J	1800	670	840	1000	220 J	420	350	620	1100	32	29 J	9.1 J	2.8 UJ	2.8 UJ	2.8 UJ	210
C3-Naphthalenes	-	µg/kg	48	3700 J	2000	860	1300	1700	260 J	710	710	1200	1700	90	85 J	11 J	2.2 J	2.1 J	1.9 J	420
C3-Phenanthrenes/anthracenes	-	µg/kg	52	5000 J	3700	1600	2000	3100	600 J	1000	890	1700	2800	54	60 J	15 J	2.8 UJ	3.8 J	2.8 UJ	470
C4-Benzanthrene/chrysenes	-	µg/kg	3.3 U	660 J	480	210	280	410	78 J	140	110	230	320	13	14 UJ	15 UJ	2.8 UJ	2.8 UJ	2.8 UJ	17 U
C4-Naphthalenes	-	µg/kg	32	2600 J	1700	710	950	1200	210 J	530	460	790	1200	58	76 J	8.7 J	2.3 J	3 J	2 J	340
C4-Phenanthrenes/anthracenes	-	µg/kg	3.3 U	2300 J	2000	860	1100	1700	330 J	600	510	1000	1600	34	32 J	15 UJ	2.8 UJ	2.8 UJ	2.8 UJ	17 U
Chrysene	218-01-9	µg/kg	170	8800 J	7000	2900	3600	6100	1200 J	2100	1900	3600	7200 J	72	74 J	53 J	2.6 J	7 J	1.3 J	1100
Dibenzo(a,h)anthracene	53-70-3	µg/kg	37	1300 J	1200	480	480	890	190 J	370	310	620	1000	9.3	13 J	11 J	2.8 UJ	2.8 UJ	2.8 UJ	220
Fluoranthene	206-44-0	µg/kg	290	16000 J	13000	5200	7300	10000	2000 J	4500	4200	8800 J	17000 J	500	140 J	90 J	4 J	13 J	2.5 J	1800
Fluorene	86-73-7	µg/kg	32	2600 J	1600	610	1300	1600	230 J	620	610	1200	1700	110	23 J	8 J	2.8 UJ	1.2 J	2.8 UJ	160
Indeno(1,2,3-Cd)Pyrene	193-39-5	µg/kg	140	4400 J	3600	1500	1700	3300	670 J	1200	1100	2200	3500	31	59 J	53 J	2 J	5.4 J	1.5 J	850
Naphthalene	91-20-3	µg/kg	140	9100 J	6700	3800	6000	9900	790 J	3200	2800	6200 J	7700 J	140	66 J	40 J	2.3 J	2.7 J	40 J	850
Perylene	198-55-0	µg/kg	87	1600 J	1300	500	710	1200	230 J	430	430	830	1400	100	16 J	21 J	17 J	17 J	20 J	230
Phenanthrene	85-01-8	µg/kg	130	8500 J	5500	2600	4700	5500	750 J	2300	2200	4200	7400 J	390	97 J	36 J	2.2 J	5.3 J	3.3 J	710
Pyrene	129-00-0	µg/kg	180	11000 J	8400	3400	4500	7000	1200 J	2800	2500	5000	12000 J	250	91 J	68 J	2.9 J	8.9 J	2.1 J	950
Total PAH-18[2]	-	µg/kg	2130	108200	82020	35090	48960	77390	13250	28600	26280	52470	93300	1987	1001	684	36	83	81	12711
Total PAH-37[3]	-	µg/kg	3120	182060	136020	57900	78070	120660	21251	44360	40260	78210	134770	4117	1877	956	82	142	133	19976

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all aroclors were nondetect, the value is 1/2 of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG.

[3] Total PAH-37 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-Naphthalenes. 1-Methylnaphthalene and 2-Methylnaphthalene were included in the sum in place of C1-Naphthalenes.

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-1. Analytical Results for Organics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-005 SD-005-0.5/1.5 5/13/2015	KKMB-SD-005 SD-005-1.5/2.5 5/13/2015	KKMB-SD-005 SD-005-2.5/3.5 5/13/2015	KKMB-SD-005 SD-005-3.5/4.5 5/13/2015	KKMB-SD-005 SD-005-4.5/5.5 5/13/2015	KKMB-SD-005 SD-005-5.5/6.4 5/13/2015	KKMB-SD-006 SD-006-0.0/0.5 5/11/2015	KKMB-SD-006 SD-006-0.5/1.5 5/11/2015	KKMB-SD-006 SD-006-1.5/2.5 5/11/2015	KKMB-SD-006 SD-006-2.5/3.5 5/11/2015	KKMB-SD-006 SD-006-3.5/4.5 5/11/2015	KKMB-SD-006 SD-006-4.5/5.5 5/11/2015	KKMB-SD-006 SD-006-5.5/6.5 5/11/2015	KKMB-SD-006 SD-006-6.5/7.5 5/11/2015	KKMB-SD-006 SD-006-7.5/8.0 5/11/2015	KKMB-SD-007 SD-007-0.0/0.5 5/11/2015	KKMB-SD-007 SD-007-0.5/1.5 5/11/2015	KKMB-SD-007 SD-007-1.5/2.5 5/11/2015
Polychlorinated Biphenyls																				
Aroclor 1016	12674-11-2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04 U	0.039 U	0.17 U
Aroclor 1221	11104-28-2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04 U	0.039 U	0.17 U
Aroclor 1232	11141-16-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04 U	0.039 U	0.17 U
Aroclor 1242	53469-21-9	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04 U	0.039 U	0.17 U
Aroclor 1248	12672-29-6	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.42	0.26	2.4
Aroclor 1254	11097-69-1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.23	0.16	0.73
Aroclor 1260	096-82-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04 U	0.039 U	0.17 U
Aroclor 1262	37324-23-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04 U	0.039 U	0.17 U
Aroclor 1268	11100-14-4	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.04 U	0.039 U	0.17 U
Total PCBs[1]	87-86-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.65	0.42	3.13
Wet Chemistry																				
Total Organic Carbon	-	mg/kg	71000	43100	25900	619	19700	62800	48700	36400	54200	56100	50900	66700	66200	30100	13300	55300	57400	49900
Moisture, percent	-	%	52.1	50	36.4	19.2	27.7	58.3	50.1	47.5	45.8	48.6	41.8	44.6	34.5	27.1	19.6	57.2	56.8	49.7
Semivolatile Organic Compounds																				
1-Methylnaphthalene	90-12-0	µg/kg	130	93 J	9 J	5.6 J	6.4 J	15 J	280 J	71 J	92 J	46	40	56	110	84 J	32	15	9.9	26
2-Methylnaphthalene	91-57-6	µg/kg	260	180 J	18 J	11 J	12 J	25 J	570 J	130 J	220 J	83	86	120	180	100 J	37	29	19	49
Acenaphthene	83-32-9	µg/kg	120	85 J	14 J	6.5 J	11 U	20 UJ	270 J	110 J	99 J	46	48	98	94	25 J	4.9 J	24	12	32
Acenaphthylene	208-96-8	µg/kg	270	160 J	24 J	13 J	9 J	15 J	460 J	85 J	230 J	76	93	160	72	24 J	6.3 J	33	23	39
Anthracene	120-12-7	µg/kg	390	310 J	37 J	20 J	13 J	16 J	940 J	170 J	440 J	140	150	330	200	56 J	11	51	36	92
Benzo(a)anthracene	56-55-3	µg/kg	1500	850 J	100 J	54 J	32 J	41 J	2600 J	460 J	1500	500	620	1200	600	170 J	31	250	170	340
Benzo(a)pyrene	50-32-8	µg/kg	1400	780 J	99 J	50 J	31 J	45 J	2300 J	440 J	1500	540	630	1000	420	140 J	24	310	230	390
Benzo(b)fluoranthene	205-99-2	µg/kg	1500	840 J	100 J	47 J	30 J	35 J	4000 J	490 J	1500	580	650	1100	470	200 J	37	380	280	440
Benzo(e)pyrene	192-97-2	µg/kg	1100	580 J	73 J	39 J	25 J	32 J	1800 J	350 J	1000	430	480	750	340	150 J	27	260	200	320
Benzo(g,h,i)perylene	191-24-2	µg/kg	940	520 J	73 J	32 J	25 J	33 J	1900 J	280 J	920	400	470	580	250	120 J	24	260	200	290
Benzo(k)fluoranthene	207-08-9	µg/kg	1200	640 J	85 J	52 J	30 J	42 J	1000 J	420 J	1200	500	460	600	360	120 J	21	280	220	360
C1-Benzanthrene/chrysenes	-	µg/kg	1300	690 J	78 J	44 J	26 J	32 J	2100 J	360 J	1100 J	360	400	910	590	330 J	87	180	130	270
C1-Fluoranthenes/Pyrenes	-	µg/kg	2900	1500 J	150 J	85 J	49 J	69 J	3700 J	560 J	2400 J	760	750	2300	1400	430 J	87	290	200	500
C1-Fluorenes	-	µg/kg	330	190 J	20 J	14 J	7 J	9.9 J	360 J	92 J	190 J	61	58	180	340	160 J	63	24	14	48
C1-Naphthalenes	-	µg/kg	250	180 J	17 J	11 J	12 J	26 J	550 J	130 J	200 J	82	81	110	180	120 J	42	27	18	48
C1-Phenanthrenes/anthracenes	-	µg/kg	860	530 J	68 J	39 J	27 J	38 J	2800 J	350 J	850 J	230	220	830	1100	730 J	190	95	60	190
C2-Benzanthrene/chrysenes	-	µg/kg	650	330 J	38 J	23 J	13 J	17 J	1400 J	170 J	500 J	180	200	600	370	230 J	67	94	62	130
C2-Fluoranthenes/Pyrenes	-	µg/kg	1500	730 J	78 J	49 J	27 J	34 J	1700 J	280 J	1100 J	320	320	1000	810	490 J	110	140	98	230
C2-Fluorenes	-	µg/kg	330	150 J	19 J	14 J	7.7 J	10 J	520 J	100 J	190 J	55	52	210	280	270 J	90	19	10	73
C2-Naphthalenes	-	µg/kg	280	300 J	31 J	17 J	14 J	22 J	780 J	250 J	250 J	140	120	280	550	200 J	92	47	26	96
C2-Phenanthrenes/anthracenes	-	µg/kg	1400	740 J	77 J	49 J	31 J	33 J	3.3 UJ	320 J	1200 J	320	280	1200	1400	630 J	150	100	52	260
C3-Benzanthrene/chrysenes	-	µg/kg	390	190 J	19 J	12 J	7.3 J	20 UJ	690 J	120 J	250 J	86	92	360	220	130 J	35	47	37	73
C3-Fluoranthenes/Pyrenes	-	µg/kg	720	360 J	39 J	26 J	16 J	16 J	1100 J	180 J	620 J	170	150	700	500	400 J	97	61	41	140
C3-Fluorenes	-	µg/kg	460	190 J	25 J	19 J	11 J	16 J	3.3 UJ	150 J	300 J	100	100	380	370	300 J	77	45	26	99
C3-Naphthalenes	-	µg/kg	430	380 J	45 J	29 J	21 J	25 J	1200 J	340 J	420 J	190	140	490	870	320 J	110	66	24	190
C3-Phenanthrenes/anthracenes	-	µg/kg	1200	590 J	58 J	38 J	23 J	20 J	3.3 UJ	220 J	890 J	250	220	950	1000	300 J	63	79	41	200
C4-Benzanthrene/chrysenes	-	µg/kg	150	87 J	13 UJ	10 U	11 U	20 UJ	260 J	46 J	3.1 U	3.2 U	2.8 U	280	120	59 J	17	3.9 U	3.8 U	3.3 U
C4-Naphthalenes	-	µg/kg	460	330 J	39 J	31 J	20 J	16 J	1100 J	270 J	450 J	180	130	590	700	150 J	55	63	19	200
C4-Phenanthrenes/anthracenes	-	µg/kg	540	300 J	31 J	10 U	11 U	20 UJ	3.3 UJ	130 J	3.1 U	3.2 U	2.8 U	740	670	150 J	10 U	41	3.8 U	3.3 U
Chrysene	218-01-9	µg/kg	1700	920 J	120 J	61 J	37 J	48 J	2500 J	540 J	1600	630	710	1300	680	270 J	59	340	240	440
Dibenzo(a,h)anthracene	53-70-3	µg/kg	290	160 J	22 J	9.4 J	6.8 J	9.9 J	840 J	81 J	320 J	120	130	250	84	48 J	9 J	65	48	84
Fluoranthene	206-44-0	µg/kg	2600	1600 J	200 J	110 J	69 J	92 J	4500 J	860 J	2200	800	920	1900	1400	260 J	48	400	340	660
Fluorene	86-73-7	µg/kg	270	210 J	17 J	12 J	8.1 J	14 J	760 J	130 J	160 J	81	89	180	190	51 J	20	39	24	56
Indeno(1,2,3-Cd)Pyrene	193-39-5	µg/kg	1100	620 J	80 J	38 J	29 J	37 J	2300 J	340 J	1000	440	530	660	270	110 J	22	280	220	320
Naphthalene	91-20-3	µg/kg	1300	750 J	83 J	41 J	38 J	82 J	2000 J	410 J	1000	340	400	460	420	140 J	38	120	87	160
Perylene	198-55-0	µg/kg	310	180 J	24 J	17 J	14 J	17 J	600 J	170 J	330 J	110	150	190	95	55 J	10	73	56	86
Phenanthrene	85-01-8	µg/kg	870	650 J	80 J	42 J	32 J	56 J	2600 J	490 J	910	440	430	850	620	330 J	89	190	130	320
Pyrene	129-00-0	µg/kg	1700	990 J	120 J	69 J	42 J	50 J	2600 J	610 J	1800	620	860	1400	820	150 J	29	340	260	480
Total PAH-18[2]	-	µg/kg	18510	10845	1345	707	474	683	33940	6396	17599	6766	7756	12938	7470	2464	537	3651	2739	4872
Total PAH-37[3]	-	µg/kg	32850	18705	2200	1229	806	1103	52537	10575	28734	10327	11181	25184	18965	7882	1974	5132	3649	7686

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all aroclors were nondetect, the value is 1/2 of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG.

[3] Total PAH-37 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-Naphthalenes. 1-Methylnaphthalene and 2-Methylnaphthalene were included in the sum in place of C1-Naphthalenes.

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-1. Analytical Results for Organics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-007 SD-007-2.5/3.5 5/11/2015	KKMB-SD-007 SD-007-3.5/4.0 5/11/2015	KKMB-SD-008 SD-008-0.0/0.5 5/11/2015	KKMB-SD-008 SD-008-0.5/1.5 5/11/2015	KKMB-SD-008 SD-008-1.5/2.5 5/11/2015	KKMB-SD-008 SD-008-2.5/3.5 5/11/2015	KKMB-SD-008 SD-008-3.5/4.6 5/11/2015	KKMB-SD-008 SD-008-4.6/5.3 5/11/2015	KKMB-SD-009 SD-009-0.0/0.5 5/13/2015	KKMB-SD-009 SD-009-0.5/1.5 5/13/2015	KKMB-SD-009 SD-009-1.5/2.5 5/13/2015	KKMB-SD-009 SD-009-2.5/3.5 5/13/2015	KKMB-SD-009 SD-009-3.5/4.5 5/13/2015	KKMB-SD-009 SD-009-4.5/5.5 5/13/2015	KKMB-SD-009 SD-009-5.5/6.5 5/13/2015	KKMB-SD-009 SD-009-6.5/7.5 5/13/2015	KKMB-SD-009 SD-009-7.5/8.5 5/13/2015	KKMB-SD-009 SD-009-8.5/9.5 5/13/2015
Polychlorinated Biphenyls																				
Aroclor 1016	12674-11-2	mg/kg	0.15 U	0.13 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	11104-28-2	mg/kg	0.15 U	0.13 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	11141-16-5	mg/kg	0.15 U	0.13 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	53469-21-9	mg/kg	0.15 U	0.13 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	12672-29-6	mg/kg	0.77	0.72	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	11097-69-1	mg/kg	0.4	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	096-82-5	mg/kg	0.15 U	0.13 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	37324-23-5	mg/kg	0.15 U	0.13 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	11100-14-4	mg/kg	0.15 U	0.13 U	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PCBs[1]	87-86-5	mg/kg	1.17	1.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wet Chemistry																				
Total Organic Carbon	-	mg/kg	39000	36500	54100	59200	53400	52600	44900	3600	65500	49700	68600	72400	56700	87600	65300	58900	6850	2160
Moisture, percent	-	%	44.3	35.2	55.6	49.2	47	43.7	44.3	13	58	55	53.7	57.6	55.2	55.8	40.4	48.2	20.9	16.9
Semivolatile Organic Compounds																				
1-Methylnaphthalene	90-12-0	µg/kg	33	64	28	19	33	200 J	40	1.3 J	76	77	86 J	130 J	230	170	200 J	120 J	6.4 J	9.9 U
2-Methylnaphthalene	91-57-6	µg/kg	75	110	47	34	68	420 J	99	1.6 J	150	160	160 J	220 J	380	290	340 J	220 J	13 J	9.9 U
Acenaphthene	83-32-9	µg/kg	46	86	58	33	46	160 J	55	1.9 U	97	95	89 J	100 J	180	150	190 J	130 J	13 J	9.9 U
Acenaphthylene	208-96-8	µg/kg	63	67	47	59	66	240 J	200	0.8 J	130	190	110 J	140 J	170	230	270 J	190 J	17 J	4.6 J
Anthracene	120-12-7	µg/kg	110	200	120	100	110	580 J	150	1.9 U	320	340	280 J	300 J	510	500	600 J	310 J	24 J	9.9 U
Benzo(a)anthracene	56-55-3	µg/kg	500	740	600	450	420	1400 J	730 J	2.7	1100	1100	710 J	830 J	1100	1500	1500 J	910 J	61 J	6.1 J
Benzo(a)pyrene	50-32-8	µg/kg	540	710	560	440	430	1200 J	660 J	2.3	1200	1100	690 J	850 J	1200	1500	1300 J	830 J	56 J	4.9 J
Benzo(b)fluoranthene	205-99-2	µg/kg	540	680	710	500	490	1500 J	610 J	2.6	1300	1100	840 J	1000 J	1400	1500	1200 J	760 J	57 J	4.9 J
Benzo(e)pyrene	192-97-2	µg/kg	460	530	470	340	340	860 J	410	2.5	900	850	570 J	710 J	1000	1100	1000 J	620 J	40 J	4.7 J
Benzo(g,h,i)perylene	191-24-2	µg/kg	450	510	420	300	310	820 J	400	2.5	870	740	520 J	640 J	880	1100	810 J	530 J	39 J	4.5 J
Benzo(k)fluoranthene	207-08-9	µg/kg	510	680	620	400	450	1100 J	560	2	1100	1100	640 J	820 J	1300	1300	1100 J	840 J	45 J	4.9 J
C1-Benzanthrene/chrysenes	-	µg/kg	350	520	380	290	320	1000 J	360	5.5	700	760	500 J	580 J	1000	1000	1100 J	760 J	47 J	7.4 J
C1-Fluoranthenes/Pyrenes	-	µg/kg	570	880	620	520	570	2100 J	700	6.8	1100	1500	1100 J	1400 J	2100	2000	2800 J	1500 J	110 J	11
C1-Fluorenes	-	µg/kg	49	81	79	42	62	210 J	50	1.9 U	120	150	120 J	160 J	240	310	300 J	260 J	15 J	9.9 U
C1-Naphthalenes	-	µg/kg	69	110	48	35	65	400 J	95	1.8 J	150	150	160 J	220 J	390	290	350 J	210 J	12 J	9.9 U
C1-Phenanthrenes/anthracenes	-	µg/kg	200	390	320	150	200	1600 J	270	5.7	510	520	470 J	530 J	890	790	1200 J	660 J	52 J	6.8 J
C2-Benzanthrene/chrysenes	-	µg/kg	170	250	190	140	160	560 J	160	6.5	310	330	230 J	220 J	520	510	520 J	390 J	24 J	6.9 J
C2-Fluoranthenes/Pyrenes	-	µg/kg	250	380	230	190	250	1000 J	220	7.1	460	560	490 J	650 J	1100	1100	1400 J	770 J	47 J	7.2 J
C2-Fluorenes	-	µg/kg	43	73	170	33	55	190 J	40	1.9 U	130	150	99 J	140 J	220	260	250 J	200 J	13 J	9.9 U
C2-Naphthalenes	-	µg/kg	100	190	140	66	97	430 J	83	3.5	290	220	250 J	280 J	490	420	470 J	300 J	17 J	4.4 J
C2-Phenanthrenes/anthracenes	-	µg/kg	230	370	360	160	260	1100 J	260	17	370	520	510 J	570 J	1100	1100	1600 J	810 J	61 J	10
C3-Benzanthrene/chrysenes	-	µg/kg	94	110	86	62	74	230 J	78	5.4	170	180	120 J	110 J	340	330	320 J	190 J	12 J	9.9 U
C3-Fluoranthenes/Pyrenes	-	µg/kg	120	190	130	81	120	670 J	100	8.4	220	260	220 J	300 J	490	620	680 J	380 J	26 J	6.9 J
C3-Fluorenes	-	µg/kg	95	150	240	66	94	300 J	77	1.9 U	220	240	180 J	260 J	380	390	360 J	230 J	24 J	9.9 U
C3-Naphthalenes	-	µg/kg	140	250	420	110	150	540 J	98	8.2	450	350	350 J	390 J	690	660	600 J	450 J	27 J	7.3 J
C3-Phenanthrenes/anthracenes	-	µg/kg	170	250	250	120	190	790 J	170	1.9 U	290	460	400 J	500 J	990	920	1100 J	600 J	49 J	11
C4-Benzanthrene/chrysenes	-	µg/kg	3 U	2.5 U	3.7 U	3.3 U	3.1 U	110 J	3 U	1.9 U	20 U	18 U	18 UJ	20 UJ	19 U	19 U	14 U	16 UJ	11 UJ	9.9 U
C4-Naphthalenes	-	µg/kg	130	230	500	110	150	380 J	83	16	440	400	300 J	370 J	630	560	510 J	350 J	26 J	9.3 J
C4-Phenanthrenes/anthracenes	-	µg/kg	3 U	2.5 U	3.7 U	3.3 U	3.1 U	540 J	3 U	1.9 U	20 U	18 U	18 UJ	240 J	530	440	480 J	280 J	11 UJ	9.9 U
Chrysene	218-01-9	µg/kg	590	850	730	540	500	1500 J	730 J	5.9	1300	1300	920 J	1100 J	1500	1600	1700 J	1000 J	66 J	8.4 J
Dibenzo(a,h)anthracene	53-70-3	µg/kg	120	130	100	96	81	280 J	120	1.9 U	240	230	150 J	190 J	240	310	240 J	170 J	12 J	9.9 U
Fluoranthene	206-44-0	µg/kg	960	1500	1400	810	640 J	3000 J	930 J	4.9	1800	1900	1800 J	1900 J	2900	2900	4900 J	1800 J	160 J	14
Fluorene	86-73-7	µg/kg	77	130	96	63	84	270 J	60	0.9 J	210	210	180 J	210 J	340	340	330 J	240 J	15 J	9.9 U
Indeno(1,2,3-Cd)Pyrene	193-39-5	µg/kg	500	570	470	340	350	980 J	470	1.7 J	1000	910	560 J	710 J	1100	1400	960 J	600 J	43 J	4.2 J
Naphthalene	91-20-3	µg/kg	300	370	140	130	340	1500 J	410	2	510	820	1100 J	1500 J	1500	1600	1700 J	1100 J	67 J	6.6 J
Perylene	198-55-0	µg/kg	140	180	120	95	93	360 J	170	1.6 J	260	240	150 J	180 J	280	350	350 J	200 J	13 J	9.9 U
Phenanthrene	85-01-8	µg/kg	400	790	510	330	330	1200 J	370	3.1	1100	940	830 J	860 J	1300	1100	1400 J	830 J	59 J	6.9 J
Pyrene	129-00-0	µg/kg	630	1000	900	540	520	1400 J	720 J	4.6	1400	1400	1100 J	940 J	1500	1800	1900 J	1100 J	94 J	9.8 J
Total PAH-18[2]	-	µg/kg	6871	9653	7998	5505	5575	18410	7684	43	14727	14485	11249	13020	18500	20220	21440	12180	881	109
Total PAH-37[3]	-	µg/kg	9758	14214	12265	7762	8456	30720	10646	142	20863	21420	16842	20040	30730	32160	35687	20638	1461	237

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all aroclors were nondetect, the value is 1/2 of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG.

[3] Total PAH-37 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-Naphthalenes. 1-Methylnaphthalene and 2-Methylnaphthalene were included in the sum in place of C1-Naphthalenes.

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-1. Analytical Results for Organics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-009 SD-009-9.5/10.5 5/13/2015	KKMB-SD-009 SD-009-10.5/11.8 5/13/2015	KKMB-SD-010 SD-010-0.0/0.5 5/14/2015	KKMB-SD-010 SD-010-0.5/1.5 5/14/2015	KKMB-SD-010 SD-010-1.5/2.5 5/14/2015	KKMB-SD-010 SD-010-2.5/3.5 5/14/2015	KKMB-SD-010 SD-010-3.5/5.0 5/14/2015	KKMB-SD-011 SD-011-0.0/0.5 5/13/2015	KKMB-SD-011 SD-011-0.5/1.5 5/13/2015	KKMB-SD-011 SD-011-1.5/2.5 5/13/2015	KKMB-SD-011 SD-011-2.5/3.1 5/13/2015	KKMB-SD-011 SD-011-3.1/4.0 5/13/2015	KKMB-SD-012 SD-012-0.0/0.5 5/14/2015	KKMB-SD-012 SD-012-0.5/1.5 5/14/2015	KKMB-SD-012 SD-012-1.5/2.5 5/14/2015	KKMB-SD-012 SD-012-2.5/3.5 5/14/2015	KKMB-SD-012 SD-012-3.5/4.5 5/14/2015	KKMB-SD-012 SD-012-4.5/5.5 5/14/2015
Polychlorinated Biphenyls																				
Aroclor 1016	12674-11-2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1221	11104-28-2	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1232	11141-16-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1242	53469-21-9	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1248	12672-29-6	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1254	11097-69-1	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1260	096-82-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1262	37324-23-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aroclor 1268	11100-14-4	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total PCBs[1]	87-86-5	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wet Chemistry																				
Total Organic Carbon	-	mg/kg	2190	1740	48800	47800	46800	72300	60200	42900	45800	44400	68700	16800	51000	53200	40500	42800	47800	94300
Moisture, percent	-	%	16.3	16.6	54.9	53.2	50.9	48.7	46.4	55.4	51.7	50.7	49.7	38.2	53.4	50.3	46	47.3	52.5	50.2
Semivolatile Organic Compounds																				
1-Methylnaphthalene	90-12-0	µg/kg	2 U	2 U	17 J	25 J	16 J	14 J	78 J	36 J	110 J	200 J	40 J	13 UJ	38	25 J	44	68 J	45	300
2-Methylnaphthalene	91-57-6	µg/kg	2 U	2 U	30 J	45	32 J	27 J	170 J	68 J	170 J	390 J	84 J	13 UJ	61	44	83	130 J	97	620
Acenaphthene	83-32-9	µg/kg	2 U	2 U	17 J	21 J	24 J	21 J	95 J	30 J	37 J	120 J	44 J	13 UJ	41	31 J	50	63 J	69	380
Acenaphthylene	208-96-8	µg/kg	2 U	2 U	44	59	52	48	240	52 J	60 J	190 J	80 J	13 UJ	69	68	120	160 J	150	510
Anthracene	120-12-7	µg/kg	2 U	2 U	65	87	91	78	450	110 J	140 J	370 J	170 J	9.6 J	130	100	180	260 J	320	1100
Benzo(a)anthracene	56-55-3	µg/kg	0.8 J	2 U	200	260	230	200	1200	370 J	440 J	1300 J	560 J	14 J	370	320	560	780 J	690	2500
Benzo(a)pyrene	50-32-8	µg/kg	2 U	2 U	230	280	230	210	1200	410 J	470 J	1300 J	540 J	12 J	420	370	640	860 J	660	2300
Benzo(b)fluoranthene	205-99-2	µg/kg	0.8 J	2 U	240	300	250	240	1500	430 J	460 J	1600 J	520 J	11 J	440	460	780	920 J	690	2500
Benzo(e)pyrene	192-97-2	µg/kg	1 J	1.1 J	180	220	180	160	950	310 J	350 J	1000 J	400 J	8.8 J	300	300	510	660 J	530	1800
Benzo(g,h,i)perylene	191-24-2	µg/kg	2 U	2 U	170	190	150	140	760	310 J	330 J	940 J	360 J	9.2 J	250	280	470	590 J	420	1100
Benzo(k)fluoranthene	207-08-9	µg/kg	2 U	2 U	240	290	220	200	1100	410 J	470 J	1100 J	520 J	11 J	350	350	640	860 J	710	1900
C1-Benzanthrene/chrysenes	-	µg/kg	2.3	2.4	140	180	150	120	770	250 J	300 J	870 J	420 J	11 J	250	210	390	520 J	470	1600
C1-Fluoranthenes/Pyrenes	-	µg/kg	2.6	2	220	300	290	220	1400	410 J	520 J	1300 J	670 J	23 J	400	340	720	880 J	1200	2600
C1-Fluorenes	-	µg/kg	2 U	2 U	15 J	24 J	27 J	17 J	100	29 J	40 J	140 J	57 J	7.3 J	28 J	27 J	38	61 J	91	420
C1-Naphthalenes	-	µg/kg	2 U	2 U	32 J	46	33 J	28 J	150	65 J	170 J	370 J	77 J	13 UJ	62	44	81	130 J	91	580
C1-Phenanthrenes/anthracenes	-	µg/kg	1.5 J	1.7 J	84	110	120	85	540	170 J	240 J	660 J	290 J	19 J	170	130	230	340 J	460	1300
C2-Benzanthrene/chrysenes	-	µg/kg	3.3	3.9	56	78	63	50	320	120 J	140 J	430 J	160 J	6.3 J	100	89	170	230 J	190	930
C2-Fluoranthenes/Pyrenes	-	µg/kg	2.3	1.9 J	81	100	97	68	460	200 J	250 J	600 J	290 J	10 J	130	120	250	310 J	330	1100
C2-Fluorenes	-	µg/kg	2 U	2 U	17 J	24 J	29 J	18 J	110	33 J	55 J	160 J	60 J	6.3 J	37	24 J	29 J	48 J	77	260
C2-Naphthalenes	-	µg/kg	2 U	1 J	34 J	52	38	32 J	170	69 J	220 J	330 J	78 J	8.8 J	70	53	96	140 J	130	690
C2-Phenanthrenes/anthracenes	-	µg/kg	3.9	4.2	77	120	130	86	540	150 J	210 J	550 J	270 J	21 J	130	130	230	320 J	390	1200
C3-Benzanthrene/chrysenes	-	µg/kg	2 U	2 U	37 U	51	48	32 U	210	70 J	85 J	240 J	89 J	13 UJ	36 U	33 U	31 U	32 UJ	35 U	620
C3-Fluoranthenes/Pyrenes	-	µg/kg	2 U	2 U	51	58	55	39	260	93 J	120 J	320 J	160 J	6.8 J	95	60	160	160 J	170	610
C3-Fluorenes	-	µg/kg	2 U	2 U	34 J	58	58	39	230	62 J	90 J	330 J	100 J	8.4 J	36 U	33 U	31 U	32 UJ	130	490
C3-Naphthalenes	-	µg/kg	1.6 J	1.6 J	35 J	60	58	41	300	100 J	240 J	430 J	140 J	14 J	96	77	110	170 J	190	1100
C3-Phenanthrenes/anthracenes	-	µg/kg	5.1	2 U	61	98	110	66	440	100 J	150 J	430 J	200 J	11 J	92	96	220	260 J	330	990
C4-Benzanthrene/chrysenes	-	µg/kg	2 U	2 U	37 U	35 U	34 U	32 U	31 U	27 J	17 UJ	17 UJ	16 UJ	13 UJ	36 U	33 U	31 U	32 UJ	35 U	250
C4-Naphthalenes	-	µg/kg	3.5	4.1	30 J	61	73	48	260	68 J	130 J	300 J	110 J	14 J	57	60	85	130 J	160	1000
C4-Phenanthrenes/anthracenes	-	µg/kg	2 U	2 U	29 J	35 U	54	33	230	18 UJ	8 J	17 UJ	16 UJ	13 UJ	36 U	33 U	12 J	32 UJ	180	530
Chrysene	218-01-9	µg/kg	2.2	2.3	260	330	290	250	1500	470 J	530 J	1600 J	650 J	17 J	490	420	720	980 J	820	2900
Dibenzo(a,h)anthracene	53-70-3	µg/kg	2 U	2 U	49	57	43	42	230 J	84 J	94 J	250 J	99 J	13 UJ	71	76	140	170 J	190	330
Fluoranthene	206-44-0	µg/kg	1.5 J	1.1 J	380	490	500	370	2400	760 J	830 J	2000 J	1000 J	46 J	920	690	1100	1500 J	1300	4200
Fluorene	86-73-7	µg/kg	2 U	2 U	33 J	45	46	37	210 J	68 J	88 J	280 J	100 J	9.1 J	67	62	86	130 J	200	890
Indeno(1,2,3-Cd)Pyrene	193-39-5	µg/kg	2 U	2 U	200	230	180	170	930	370 J	400 J	1100 J	430 J	10 J	310	340	580	730 J	670	1300
Naphthalene	91-20-3	µg/kg	2 U	0.8 J	160	200	200	160	900	440 J	580 J	1700 J	500 J	20 J	270	180	380	540 J	610	5200
Perylene	198-55-0	µg/kg	2 U	2 U	57	68	54	49	300	100 J	110 J	340 J	130 J	11 J	110	94	160	210 J	150	530
Phenanthrene	85-01-8	µg/kg	1 J	1 J	150	190	200	160	980	330 J	400 J	1200 J	470 J	26 J	400	300	450	640 J	690	2600
Pyrene	129-00-0	µg/kg	2.2 J	2.2 J	280	390	370	290	1700	520 J	580 J	1700 J	740 J	29 J	570	530	830	1100 J	960	3600
Total PAH-18[2]	-	µg/kg	20	20	2928	3684	3288	2803	16515	5542	6429	18140	7267	259	5529	4921	8319	11073	9776	35730
Total PAH-37[3]	-	µg/kg	56	53	4003	5186	4775	3860	23249	7638	9456	25787	10547	463	7404	6522	11310	14984	14504	52250

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all aroclors were nondetect, the value is 1/2 of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG.

[3] Total PAH-37 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-Naphthalenes. 1-Methylnaphthalene and 2-Methylnaphthalene were included in the sum in place of C1-Naphthalenes.

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-1. Analytical Results for Organics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-012 SD-012-5.5/6.5 5/14/2015	KKMB-SD-012 SD-012-6.5/7.5 5/14/2015	KKMB-SD-012 SD-012-7.5/8.5 5/14/2015	KKMB-SD-012 SD-012-8.5/9.5 5/14/2015	KKMB-SD-012 SD-012-9.5/10.5 5/14/2015	KKMB-SD-012 SD-012-10.5/12.2 5/14/2015	KKMB-SD-013 SD-013-0.0/0.5 5/14/2015	KKMB-SD-013 SD-013-0.5/1.5 5/14/2015	KKMB-SD-013 SD-013-1.5/2.5 5/14/2015	KKMB-SD-013 SD-013-2.5/3.5 5/14/2015	KKMB-SD-013 SD-013-3.5/4.5 5/14/2015	KKMB-SD-013 SD-013-4.5/5.5 5/14/2015	KKMB-SD-013 SD-013-5.5/6.5 5/14/2015	KKMB-SD-013 SD-013-6.5/7.5 5/14/2015	KKMB-SD-013 SD-013-7.5/8.5 5/14/2015	KKMB-SD-013 SD-013-8.5/9.5 5/14/2015	KKMB-SD-013 SD-013-9.5/10.5 5/14/2015	KKMB-SD-013 SD-013-10.5/11.5 5/14/2015
Polychlorinated Biphenyls																				
Aroclor 1016	12674-11-2	mg/kg	-	-	-	-	-	-	0.18 U	0.17 U	0.16 U	0.16 U	0.16 UJ	0.033 U	0.16 U	0.16 U	0.031 U	0.031 U	0.031 U	0.031 U
Aroclor 1221	11104-28-2	mg/kg	-	-	-	-	-	-	0.18 U	0.17 U	0.16 U	0.16 U	0.16 U	0.033 U	0.16 U	0.16 U	0.031 U	0.031 U	0.031 U	0.031 U
Aroclor 1232	11141-16-5	mg/kg	-	-	-	-	-	-	0.18 U	0.17 U	0.16 U	0.16 U	0.16 U	0.033 U	0.16 U	0.16 U	0.031 U	0.031 U	0.031 U	0.031 U
Aroclor 1242	53469-21-9	mg/kg	-	-	-	-	-	-	0.18 U	0.17 U	0.16 U	0.16 U	0.16 U	0.033 U	0.16 U	0.16 U	0.031 U	0.031 U	0.031 U	0.031 U
Aroclor 1248	12672-29-6	mg/kg	-	-	-	-	-	-	0.73	0.7	0.82	0.61	0.72	0.34	0.75	0.35	0.031 U	0.046	0.031 U	0.031 U
Aroclor 1254	11097-69-1	mg/kg	-	-	-	-	-	-	0.41	0.32	0.39	0.27	0.34	0.18	0.43	0.59	0.031 UJ	0.032 J	0.031 U	0.031 U
Aroclor 1260	096-82-5	mg/kg	-	-	-	-	-	-	0.14 J	0.13 J	0.16 U	0.16 U	0.16 U	0.033 U	0.16 U	0.16 U	0.031 U	0.031 U	0.031 U	0.031 U
Aroclor 1262	37324-23-5	mg/kg	-	-	-	-	-	-	0.18 U	0.17 U	0.16 U	0.16 U	0.16 U	0.033 U	0.16 U	0.16 U	0.031 U	0.031 U	0.031 U	0.031 U
Aroclor 1268	11100-14-4	mg/kg	-	-	-	-	-	-	0.18 U	0.17 U	0.16 U	0.16 U	0.16 U	0.033 U	0.16 U	0.16 U	0.031 U	0.031 U	0.031 U	0.031 U
Total PCBs[1]	87-86-5	mg/kg	-	-	-	-	-	-	1.28	1.15	1.21	0.88	1.06	0.52	1.18	0.94	0.016 U	0.078	0.016 U	0.016 U
Wet Chemistry																				
Total Organic Carbon	-	mg/kg	35100	121000	95500	81800	91600	26700	54700	54800	52000	59100	56500	77900	63000	117000	106000	127000	134000	101000
Moisture, percent	-	%	49.3	49.4	49	46.5	47.2	37.2	53.2	49.8	46.8	46.6	48.7	48.6	46.5	45.9	46.7	46	45.1	44.7
Semivolatile Organic Compounds																				
1-Methylnaphthalene	90-12-0	µg/kg	220	330 J	630	270	290 J	96	46	42	38	49 J	31 J	48	38 J	150	340 J	1000 J	1400 J	930 J
2-Methylnaphthalene	91-57-6	µg/kg	450	670 J	1300	540	520 J	210	110	88	73	93 J	66 J	90	91 J	370	830 J	2500 J	2900 J	1800 J
Acenaphthene	83-32-9	µg/kg	210	410 J	910	290	280 J	140	49	43	41	42 J	30 J	49	62 J	210	550 J	1300 J	2700 J	1100 J
Acenaphthylene	208-96-8	µg/kg	340	1100 J	1300	730	550 J	280	81	73	69	67 J	49 J	87	87 J	270	920 J	3200 J	2500 J	2100 J
Anthracene	120-12-7	µg/kg	680	2300 J	2700	1200	1000 J	410	200	140	110	130 J	98 J	220	270 J	850	2400 J	5700 J	7300 J	4300 J
Benzo(a)anthracene	56-55-3	µg/kg	1800	5400 J	5800	3500	2800 J	1000	690	660	480	600	470 J	630	820 J	1900	5700 J	14000 J	11000 J	9400 J
Benzo(a)pyrene	50-32-8	µg/kg	1600	4900 J	5200	3000	2200 J	830	780	700	520	640	510 J	610	840 J	1800	4800 J	12000 J	8800 J	7600 J
Benzo(b)fluoranthene	205-99-2	µg/kg	1800	6300 J	5600	3300	2100 J	840	880	670	620	600	570 J	600	790 J	1900	4700 J	12000 J	8800 J	7400 J
Benzo(e)pyrene	192-97-2	µg/kg	1400	3400 J	3700	2200	1500 J	580	610	530	390	490 J	360 J	480	620 J	1300	3200 J	8300 J	6200 J	5400 J
Benzo(g,h,i)perylene	191-24-2	µg/kg	940	3000 J	2800	1600	900 J	470	570	500	380	480 J	340 J	450	600 J	1200	3000 J	6300 J	4800 J	4200 J
Benzo(k)fluoranthene	207-08-9	µg/kg	1300	3800 J	4100	2700	2100 J	780	630	540	410	580 J	390 J	500	810 J	1400	3900 J	11000 J	7500 J	7700 J
C1-Benzanthrene/chrysenes	-	µg/kg	1300	3900 J	4900	2300	2100 J	740	440	380	300	370 J	270 J	380	490 J	1200	3300 J	9900 J	8900 J	7500 J
C1-Fluoranthenes/Pyrenes	-	µg/kg	2400	9200 J	10000	5600	3300 J	1400	1000	750	610	780 J	460 J	850	1400 J	3300	9300 J	19000 J	21000 J	15000 J
C1-Fluorenes	-	µg/kg	290	860 J	1700	730	750 J	200	64	53	46	83 J	36 J	62	79 J	550	2000 J	2500 J	4000 J	2600 J
C1-Naphthalenes	-	µg/kg	430	660 J	1300	510	510 J	190	100	85	71	90 J	60 J	89	84 J	330	740 J	2300 J	2700 J	1700 J
C1-Phenanthrenes/anthracenes	-	µg/kg	1100	4300 J	5000	2600	2000 J	880	350	250	220	250 J	160 J	370	430 J	1300	3500 J	8400 J	13000 J	7800 J
C2-Benzanthrene/chrysenes	-	µg/kg	540	1800 J	2600	1100	880 J	380	230	200	130	170 J	130 J	150	210 J	610	1500 J	4600 J	4200 J	3800 J
C2-Fluoranthenes/Pyrenes	-	µg/kg	870	4600 J	4900	2300	1500 J	610	410	280	220	310 J	160 J	300	540 J	1500	3900 J	9700 J	8900 J	7500 J
C2-Fluorenes	-	µg/kg	180	780 J	1400	590	340 J	160	38	34	40	47 J	23 J	50	66 J	310	980 J	2500 J	3400 J	2300 J
C2-Naphthalenes	-	µg/kg	520	1100 J	1600	670	880 J	260	100	94	79	120 J	66 J	96	96 J	430	760 J	2500 J	3600 J	2200 J
C2-Phenanthrenes/anthracenes	-	µg/kg	1200	6200 J	6500	2900	2100 J	1100	330	230	200	250 J	150 J	290	460 J	1500	3900 J	11000 J	13000 J	9400 J
C3-Benzanthrene/chrysenes	-	µg/kg	32 U	1300 J	1600	720	800 J	240	150	120	70	93 J	79 J	76	120 J	360	880 J	3000 J	2600 J	2400 J
C3-Fluoranthenes/Pyrenes	-	µg/kg	560	2600 J	2600	1300	740 J	310	240	140	110	130 J	100 J	120	230 J	750	2200 J	6000 J	4200 J	4700 J
C3-Fluorenes	-	µg/kg	400	1400 J	1800	760	460 J	270	89	81	81	95 J	3.2 UJ	110	160 J	480	1100 J	3700 J	4200 J	3200 J
C3-Naphthalenes	-	µg/kg	750	2600 J	2200	1000	1300 J	290	130	130	99	150 J	88 J	110	140 J	590	1200 J	4400 J	5300 J	3200 J
C3-Phenanthrenes/anthracenes	-	µg/kg	1000	4800 J	4700	2300	1200 J	690	230	150	130	170 J	100 J	160	330 J	1200	3000 J	8500 J	8800 J	6400 J
C4-Benzanthrene/chrysenes	-	µg/kg	32 U	450 J	500	200	240 J	89	3.6 U	3.3 U	3.1 U	3.1 UJ	3.2 UJ	3.2 U	3.1 UJ	31 U	310 J	960 J	1000 J	780 J
C4-Naphthalenes	-	µg/kg	730	2700 J	2900	860	950 J	220	89	90	81	130	66 J	99	160 J	610	1200 J	4100 J	4300 J	2900 J
C4-Phenanthrenes/anthracenes	-	µg/kg	560	2200 J	2300	1000	620 J	300	3.6 U	3.3 U	3.1 U	3.1 UJ	3.2 UJ	3.2 U	3.1 UJ	680	1200 J	4100 J	3800 J	2900 J
Chrysene	218-01-9	µg/kg	2200	5500 J	6300	3700	2900 J	1100	690	780	570	700	570 J	720	980 J	2100	5800 J	14000 J	12000 J	9800 J
Dibenzo(a,h)anthracene	53-70-3	µg/kg	290	1000 J	1200	550	330 J	200	160	140	100	130 J	90 J	140	190 J	330	900 J	2500 J	2000 J	1700 J
Fluoranthene	206-44-0	µg/kg	3400	9900	11000 J	5600	3800 J	2300	1200	1100	960	1200	920 J	1200	1700 J	3800	11000 J	22000 J	23000 J	17000 J
Fluorene	86-73-7	µg/kg	550	1000 J	1800	820	740 J	250	110	92	83	98 J	59 J	100	130 J	690	2400 J	4000 J	5500 J	3000 J
Indeno(1,2,3-Cd)Pyrene	193-39-5	µg/kg	1100	3300 J	3900	2000	1200 J	740	690	560	430	540 J	380 J	520	680 J	1300	3400 J	8300 J	5900 J	5200 J
Naphthalene	91-20-3	µg/kg	4200	5300 J	8200 J	3800	4200 J	1500	500	420	290	420 J	290 J	320	600 J	3700	12000 J	27000 J	19000 J	14000 J
Perylene	198-55-0	µg/kg	360	1100 J	1100	700	500 J	210	200	170	120	160 J	120 J	160	200 J	430	1200 J	2900 J	2000 J	1800 J
Phenanthrene	85-01-8	µg/kg	1500	4200 J	6000	2600	2200 J	940	570	510	410	400 J	350 J	590	730 J	2200	6500 J	12000 J	16000 J	10000 J
Pyrene	129-00-0	µg/kg	2400	7000	8500 J	3900	3500 J	1700	880 J	750 J	530 J	640 J	610 J	670	950 J	2100	6000 J	16000 J	16000 J	11000 J
Total PAH-18[2]	-	µg/kg	26160	68480	80310	42030	32820	14270	9400	8296	6466	7850	6152	7976	10950	27420	78000	182100	161900	122700
Total PAH-37[3]	-	µg/kg	39172	120700	139240	69930	53770	22715	13540	11493	9043	11210	8196	11410	16102	43386	119770	290860	279500	210010

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all aroclors were nondetect, the value is 1/2 of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG.

[3] Total PAH-37 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-Naphthalenes. 1-Methylnaphthalene and 2-Methylnaphthalene were included in the sum in place of C1-Naphthalenes.

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-1. Analytical Results for Organics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-013 SD-013-11.5/13.0 5/14/2015	KKMB-SD-010 TX-010-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.5/5.0 5/14/2015	KKMB-SD-014 TX-014-0.0/0.5 5/14/2015	KKMB-SD-014 TX-014-0.5/5.0 5/14/2015
Polychlorinated Biphenyls								
Aroclor 1016	12674-11-2	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1221	11104-28-2	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1232	11141-16-5	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1242	53469-21-9	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1248	12672-29-6	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1254	11097-69-1	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1260	096-82-5	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1262	37324-23-5	mg/kg	0.031 U	-	-	-	-	-
Aroclor 1268	11100-14-4	mg/kg	0.031 U	-	-	-	-	-
Total PCBs[1]	87-86-5	mg/kg	0.016 U	-	-	-	-	-
Wet Chemistry								
Total Organic Carbon	-	mg/kg	171000	38300	60900	53300	34700	55300
Moisture, percent	-	%	46.1	57.2	54.3	45.2	65.5	46.8
Semivolatile Organic Compounds								
1-Methylnaphthalene	90-12-0	µg/kg	2200	39 U	17 J	260	48 U	49
2-Methylnaphthalene	91-57-6	µg/kg	4700	23 J	29 J	440	26 J	100
Acenaphthene	83-32-9	µg/kg	5800	17 J	19 J	130	27 J	62
Acenaphthylene	208-96-8	µg/kg	2800	59	53	240	55	150
Anthracene	120-12-7	µg/kg	9800	57	69	450	78	250
Benzo(a)anthracene	56-55-3	µg/kg	14000	160	210	1300	290	700
Benzo(a)pyrene	50-32-8	µg/kg	11000	190	240	1300	360	720
Benzo(b)fluoranthene	205-99-2	µg/kg	10000	210	250	1700	470	850
Benzo(e)pyrene	192-97-2	µg/kg	7300	150	190	1200	310	550
Benzo(g,h,i)perylene	191-24-2	µg/kg	5700	140	180	1000	290	470
Benzo(k)fluoranthene	207-08-9	µg/kg	9700	170	270	1500	350	630
C1-Benzanthrene/chrysenes	-	µg/kg	9500	110	140	940	170	450
C1-Fluoranthenes/Pyrenes	-	µg/kg	20000	190	230	1700	310	880
C1-Fluorenes	-	µg/kg	2900	16 J	17 J	140	48 U	64
C1-Naphthalenes	-	µg/kg	4300	26 J	28 J	440	28 J	96
C1-Phenanthrenes/anthracenes	-	µg/kg	11000	70	91	780	110	330
C2-Benzanthrene/chrysenes	-	µg/kg	4200	49	57	410	65	190
C2-Fluoranthenes/Pyrenes	-	µg/kg	8700	69	80	660	110	290
C2-Fluorenes	-	µg/kg	2700	39 U	36 U	130	48 U	71
C2-Naphthalenes	-	µg/kg	3400	19 J	35 J	450	34 J	87
C2-Phenanthrenes/anthracenes	-	µg/kg	10000	68	84	740	89	350
C3-Benzanthrene/chrysenes	-	µg/kg	2600	39 U	36 U	300	48 U	130
C3-Fluoranthenes/Pyrenes	-	µg/kg	4400	42	50	420	65	170
C3-Fluorenes	-	µg/kg	3000	39 U	36 U	30 J	48 U	31 U
C3-Naphthalenes	-	µg/kg	4000	23 J	44	560	34 J	140
C3-Phenanthrenes/anthracenes	-	µg/kg	7100	51	59	590	63	280
C4-Benzanthrene/chrysenes	-	µg/kg	890	39 U	36 U	30 U	48 U	45
C4-Naphthalenes	-	µg/kg	3100	18 J	37	330	29 J	120
C4-Phenanthrenes/anthracenes	-	µg/kg	3100	39 U	36 U	340	48 U	140
Chrysene	218-01-9	µg/kg	14000	210	270	1700	420	850
Dibenzo(a,h)anthracene	53-70-3	µg/kg	2100	38 J	48	280	72	140
Fluoranthene	206-44-0	µg/kg	26000	310	430	2800	790	1400
Fluorene	86-73-7	µg/kg	7800	35 J	36 J	290	40 J	130
Indeno(1,2,3-Cd)Pyrene	193-39-5	µg/kg	7000	160	210	1200	350	570
Naphthalene	91-20-3	µg/kg	15000	110	140	1500	89	590
Perylene	198-55-0	µg/kg	2600	47	60	330	90	170
Phenanthrene	85-01-8	µg/kg	22000	120	170	1400	270	580
Pyrene	129-00-0	µg/kg	17000	230	330	1900	540	1000
Total PAH-18[2]	-	µg/kg	191700	2389	3144	20330	4827	9742
Total PAH-37[3]	-	µg/kg	297090	3278	4235	29455	6164	13714

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

[1] Total PCBs calculated by summing the detected results for PCB Aroclors. When all aroclors were nondetect, the value is 1/2 of the highest individual quantitation limit, and qualified "U".

[2] Total PAH-18 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results, for the 18 PAHs listed in the WDNR CBSQG.

[3] Total PAH-37 calculated by summing the detected results and 1/2 of the quantitation limit for nondetected results for PAHs and alkylated PAHs, excluding C1-Naphthalenes. 1-Methylnaphthalene and 2-Methylnaphthalene were included in the sum in place of C1-Naphthalenes.

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-001 SD-001-0.0/0.5 5/14/2015	KKMB-SD-002 SD-002-0.0/0.5 5/14/2015	KKMB-SD-002 SD-002-0.5/1.5 5/14/2015	KKMB-SD-002 SD-002-1.5/2.5 5/14/2015	KKMB-SD-002 SD-002-2.5/3.9 5/14/2015	KKMB-SD-003 SD-003-0.0/0.5 5/14/2015	KKMB-SD-003 SD-003-0.5/1.5 5/14/2015	KKMB-SD-003 SD-003-1.5/2.5 5/14/2015	KKMB-SD-003 SD-003-2.5/3.5 5/14/2015	KKMB-SD-003 SD-003-3.5/4.5 5/14/2015	KKMB-SD-003 SD-003-4.5/5.6 5/14/2015
Metals													
Aluminum	7429-90-5	mg/kg	9260	13900	18400	10500	6990	11600	13900	10900	4860	6340	11200
Antimony	7440-36-0	mg/kg	7.54 U	2.43 J	1.63 J	2.25 J	0.877 J	2.04 J	1.27 J	1.47 J	0.79 J	0.916 J	1.92 J
Arsenic	7440-38-2	mg/kg	7.41 J	47.7	29.3	24.8	15.5	29.9	33.6	17.8	7.39	9.84	22.5
Barium	7440-39-3	mg/kg	121	220	191	183	122	173	175	130	53.5	68	176
Beryllium	7440-41-7	mg/kg	0.461	1.06	1.2	0.715	0.524	0.911	0.916	0.659	0.328	0.427	0.819
Cadmium	7440-43-9	mg/kg	1.04 J	9.89	4.14	4.86	2.95	8.23	5.63	2.71	0.809 J	1.08 J	2.76
Chromium	7440-47-3	mg/kg	37.2	713	484	537	682	669	649	412	198	288	1340
Cobalt	7440-48-4	mg/kg	6	8.44	9.32	7.06	5.6	7.33	7.91	6.78	3.89	5.16	7.46
Copper	7440-50-8	mg/kg	28.6	182	130	154	97.6	136	136	94.6	33.1	48.2	140
Lead	7439-92-1	mg/kg	29.8	383	269	318	164	770	274	185	54.9	72	240
Manganese	7439-96-5	mg/kg	917	475	430	435	368	406	427	460	327	409	437
Mercury	7439-97-6	mg/kg	0.148 J	2.97	1.93	2.43	1.98	2.34	2.39	1.11	0.619	0.778	3.53
Nickel	7440-02-0	mg/kg	15.3	35.9	34.4	26.5	21.9	28.8	29.4	22.6	10.5	14.7	29.2
Selenium	7782-49-2	mg/kg	4.94 J	7.94	6.09 J	6.34 J	3.41 J	5.73 J	6.12 J	5.46 J	2.75 J	3.31 J	5.82 J
Thallium	7440-28-0	mg/kg	11.3 U	2.18 J	1.98 J	1.63 J	9.66 U	2.23 J	1.84 J	1.63 J	8.29 U	9.12 U	1.94 J
Vanadium	7440-62-2	mg/kg	22.5	32.3	42.7	26.4	20.3	28.8	32.4	27.3	14.9	18.8	28.5
Zinc	7440-66-6	mg/kg	134	902	662	796	551	827	679	476	165	219	685
Cyanide	57-12-5	mg/kg	0.94 U	0.89 J	0.67 J	0.98	1.1	1.4	2.3	0.85	0.61 J	1.8	2.3

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-003 SD-003-5.6/5.9 5/14/2015	KKMB-SD-004 SD-004-0.0/0.5 5/13/2015	KKMB-SD-004 SD-004-0.5/1.5 5/13/2015	KKMB-SD-004 SD-004-1.5/2.3 5/13/2015	KKMB-SD-004 SD-004B-0.5/1.5 5/13/2015	KKMB-SD-004 SD-004B-1.5/3.8 5/13/2015	KKMB-SD-005 SD-005-0.0/0.5 5/13/2015	KKMB-SD-005 SD-005-0.5/1.5 5/13/2015	KKMB-SD-005 SD-005-1.5/2.5 5/13/2015	KKMB-SD-005 SD-005-2.5/3.5 5/13/2015	KKMB-SD-005 SD-005-3.5/4.5 5/13/2015
Metals													
Aluminum	7429-90-5	mg/kg	10200	10400	13600	12800	13100	12300	13000	15800	13800	5710	2980
Antimony	7440-36-0	mg/kg	6.33 U	6.34 U	7.04 U	6.37 U	6.8 U	6.7 U	8.22 U	0.871 J	7.77 U	6.05 U	4.9 U
Arsenic	7440-38-2	mg/kg	5.64 J	10.8	7.71	5.6 J	7.1	5.95 J	26.6	34.1	20.5	8.46	2.5 J
Barium	7440-39-3	mg/kg	115	96.5	105	102	109	113	126	176	120	50.3	19.4
Beryllium	7440-41-7	mg/kg	0.485	0.614	0.627	0.571	0.578	0.58	0.88	1.17	0.812	0.365	0.164 J
Cadmium	7440-43-9	mg/kg	0.523 J	1.24 J	0.467 J	0.339 J	0.337 J	0.382 J	15.4	13	6.67	2.39	0.599 J
Chromium	7440-47-3	mg/kg	27.6	53.4	28.2	22	22.5	21	262	309	220	68	19.9
Cobalt	7440-48-4	mg/kg	7.34	6.59	7.73	7.03	6.97	6.99	8.87	9.09	7.17	3.83	1.88
Copper	7440-50-8	mg/kg	17.4	44.6	22.5	18.7	18.9	18.4	119	127	78.8	29.6	9.35
Lead	7439-92-1	mg/kg	16.7	51.5	15.1	7.97	8.61	6.82	270	586	162	58.4	16.1
Manganese	7439-96-5	mg/kg	830	634	819	824	824	847	488	437	396	317	185
Mercury	7439-97-6	mg/kg	0.313 U	0.121 J	0.151 J	0.312 U	0.0212 J	0.0185 J	0.71	1.4	0.773	0.186 J	0.0416 J
Nickel	7440-02-0	mg/kg	17.6	22	19.2	17.4	17.5	16.8	33.1	36.6	26.5	11.5	4.77
Selenium	7782-49-2	mg/kg	5.06 J	4.98 J	3.16 J	3.11 J	3.61 J	4.83 J	6.68 J	10.8	5.63 J	3.35 J	1.26 J
Thallium	7440-28-0	mg/kg	1.63 J	9.51 U	1.46 J	1.56 J	1.52 J	1.47 J	12.3 U	12.5 U	11.7 U	9.07 U	7.35 U
Vanadium	7440-62-2	mg/kg	23.3	25.1	30.1	28.4	28.5	27.5	35.9	37	32	17.6	10.3
Zinc	7440-66-6	mg/kg	63.6	166	82.3	61.8	64.5	63.5	830	787	511	202	55.4
Cyanide	57-12-5	mg/kg	0.78 U	0.67 J	0.32 J	0.82 U	0.83 U	0.85 U	2	1.1	1.2	0.47 J	0.32 J

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-005 SD-005-4.5/5.5 5/13/2015	KKMB-SD-005 SD-005-5.5/6.4 5/13/2015	KKMB-SD-006 SD-006-0.0/0.5 5/11/2015	KKMB-SD-006 SD-006-0.5/1.5 5/11/2015	KKMB-SD-006 SD-006-1.5/2.5 5/11/2015	KKMB-SD-006 SD-006-2.5/3.5 5/11/2015	KKMB-SD-006 SD-006-3.5/4.5 5/11/2015	KKMB-SD-006 SD-006-4.5/5.5 5/11/2015	KKMB-SD-006 SD-006-5.5/6.5 5/11/2015	KKMB-SD-006 SD-006-6.5/7.5 5/11/2015	KKMB-SD-006 SD-006-7.5/8.0 5/11/2015
Metals													
Aluminum	7429-90-5	mg/kg	3410	5900	13600	8840	10800	18900	14100	16400	9330	6640	15000
Antimony	7440-36-0	mg/kg	5.53 U	9.4 U	7.94 U	7.62 U	7.38 U	7.41 U	6.61 U	7.08 U	5.87 U	5.23 U	4.93 U
Arsenic	7440-38-2	mg/kg	1.83 J	5.8 J	17.7	5.55 J	24.4	21.9	15.6	36.4	23.2	4.19 J	5.85
Barium	7440-39-3	mg/kg	29.9	73	118	81.2	106	154	112	203	108	110	78.1
Beryllium	7440-41-7	mg/kg	0.192 J	0.344 J	0.734	0.474	0.596	0.958	0.689	0.948	0.787	0.508	0.606
Cadmium	7440-43-9	mg/kg	0.194 J	0.567 J	8.24	1.25 J	13.2	9.43	7.01	12.1	2.48	0.349 J	0.225 J
Chromium	7440-47-3	mg/kg	9.54	55.5 J	165	49.1	187	323	176	276	82	15.6	15.3
Cobalt	7440-48-4	mg/kg	2.36	4.62	7.49	5.28	5.94	10.1	7.54	9.54	6.65	4.02	3.83
Copper	7440-50-8	mg/kg	6.54	21.5	91.9	28.3	91.6	118	87.5	139	52.6	20.7 J	17.3
Lead	7439-92-1	mg/kg	4.84	20.2 J	207	40.5	167	363	187	409	326	38.4 J	10
Manganese	7439-96-5	mg/kg	235	354	439	424	399	519	491	541	394	332	249
Mercury	7439-97-6	mg/kg	0.0203 J	0.0701 J	0.611	0.0743 J	1.11	0.927	0.527	1.35	0.387	0.0755 J	0.0989 J
Nickel	7440-02-0	mg/kg	5.42	12.9	27.5	14.3	25.5	63.6	26.4	36	18.1	9.58	14.3
Selenium	7782-49-2	mg/kg	1.31 J	4.06 J	2.91 J	1.04 J	3.52 J	3.5 J	3.01 J	5.57 J	7.95	1.85 J	1.29 J
Thallium	7440-28-0	mg/kg	8.3 U	14.1 U	11.9 U	11.4 U	11.1 U	11.1 U	9.91 U	10.6 U	1.71 J	7.84 U	1.89 J
Vanadium	7440-62-2	mg/kg	11.3	18	33	24.3	28.2	47.8	36.3	41.7	25.2	18.5	19.2
Zinc	7440-66-6	mg/kg	38.2	118 J	507	122	676	643	493	1030	276	57.8	35.9
Cyanide	57-12-5	mg/kg	0.66 U	1.2 U	1.2	0.37 J	2	1.3	1.9	1.9	0.63 J	0.73	0.4 J

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-007 SD-007-0.0/0.5 5/11/2015	KKMB-SD-007 SD-007-0.5/1.5 5/11/2015	KKMB-SD-007 SD-007-1.5/2.5 5/11/2015	KKMB-SD-007 SD-007-2.5/3.5 5/11/2015	KKMB-SD-007 SD-007-3.5/4.0 5/11/2015	KKMB-SD-008 SD-008-0.0/0.5 5/11/2015	KKMB-SD-008 SD-008-0.5/1.5 5/11/2015	KKMB-SD-008 SD-008-1.5/2.5 5/11/2015	KKMB-SD-008 SD-008-2.5/3.5 5/11/2015	KKMB-SD-008 SD-008-3.5/4.6 5/11/2015	KKMB-SD-008 SD-008-4.6/5.3 5/11/2015
Metals													
Aluminum	7429-90-5	mg/kg	15700	18700	16900	15400	12600	21400	21500	15100	11100	10800	7870
Antimony	7440-36-0	mg/kg	9.07 U	9.26 U	4.62 J	7.04 U	3.75 J	8.83 U	7.5 U	7.19 U	7.03 U	7.11 U	4.6 U
Arsenic	7440-38-2	mg/kg	9.42	11	13.2	11.7	13	21.9	21.5	13.9	15.2	11.7	4.28 J
Barium	7440-39-3	mg/kg	116	141	138	124	234	184	169	129	102	92.6	35.9
Beryllium	7440-41-7	mg/kg	0.746	0.829	0.85	0.746	0.628	1.02	1.04	0.977	0.691	0.589	0.36
Cadmium	7440-43-9	mg/kg	4.17	4.71	6.54	5.39	5.43	11.5	9.75	6.05	1.21 J	1.38 J	0.211 J
Chromium	7440-47-3	mg/kg	154	181	233	207	198	383	298	182	216	351	14
Cobalt	7440-48-4	mg/kg	7.62	9.35	8.84	8.36	7.84	11.9	10.8	9.7	7.03	5.6	5.15
Copper	7440-50-8	mg/kg	84.3	108	103	98.7	183	150	126	76.2	56.5	56.4	15.7
Lead	7439-92-1	mg/kg	176	183	297	246	249	503	451	187	82.4	91.8	11.1
Manganese	7439-96-5	mg/kg	504	647	538	554	436	620	508	439	426	335	351
Mercury	7439-97-6	mg/kg	0.334 J	0.502	0.595	0.486	0.443	1.11	0.913	0.689	0.794	1.02	0.215 U
Nickel	7440-02-0	mg/kg	26	29.5	36.9	30.3	25	66.9	44.7	28.1	21	20.1	13.4
Selenium	7782-49-2	mg/kg	2.33 J	2.94 J	2.5 J	3.51 J	2.66 J	3.82 J	1.96 J	4.67 J	2.34 J	2.97 J	0.532 J
Thallium	7440-28-0	mg/kg	13.6 U	13.9 U	11.9 U	10.6 U	8.82 U	13.2 U	11.2 U	10.8 U	10.6 U	10.7 U	6.9 U
Vanadium	7440-62-2	mg/kg	35.6	40.2	40.2	38.4	33.3	58.9	44.7	35.9	29.8	26.6	23
Zinc	7440-66-6	mg/kg	402	493	506	498	441	788	667	405	265	295	56.5
Cyanide	57-12-5	mg/kg	1.1 J	1 J	1.7	1.5	1.2	0.79 J	1.5	1.6	1.1	2.2	0.56 U

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-009 SD-009-0.0/0.5 5/13/2015	KKMB-SD-009 SD-009-0.5/1.5 5/13/2015	KKMB-SD-009 SD-009-1.5/2.5 5/13/2015	KKMB-SD-009 SD-009-2.5/3.5 5/13/2015	KKMB-SD-009 SD-009-3.5/4.5 5/13/2015	KKMB-SD-009 SD-009-4.5/5.5 5/13/2015	KKMB-SD-009 SD-009-5.5/6.5 5/13/2015	KKMB-SD-009 SD-009-6.5/7.5 5/13/2015	KKMB-SD-009 SD-009-7.5/8.5 5/13/2015	KKMB-SD-009 SD-009-8.5/9.5 5/13/2015	KKMB-SD-009 SD-009-9.5/10.5 5/13/2015
Metals													
Aluminum	7429-90-5	mg/kg	16800	17900	17500	20100	18500	17900	10800	12300	3760	3340	3360
Antimony	7440-36-0	mg/kg	1.37 J	0.787 J	2.76 J	2.43 J	2.29 J	2.05 J	6.45 U	0.638 J	4.82 U	4.72 U	4.69 U
Arsenic	7440-38-2	mg/kg	20.2	21.9	26	29.3	29.5	54.6	24.6	25	2.07 J	4.72 U	1.31 J
Barium	7440-39-3	mg/kg	179	167	167	181	186	215	108	134	21.4	15.8	17.1
Beryllium	7440-41-7	mg/kg	0.966	1.16	1.37	1.54	1.25	1.41	0.708	0.777	0.231 J	0.169 J	0.17 J
Cadmium	7440-43-9	mg/kg	13.2	10.5	12.1	12.6	11.6	21.7	9.44	8.96	0.445 J	0.215 J	0.179 J
Chromium	7440-47-3	mg/kg	427	315	296	316	312	415	188	246	18.5	7.13	6.04
Cobalt	7440-48-4	mg/kg	10.8	10.5	9.69	10.7	10.3	10.2	6.51	7.25	3.1	2.81	2.58
Copper	7440-50-8	mg/kg	143	130	142	147	147	220	92.2	98	13.1	10.3	9.48
Lead	7439-92-1	mg/kg	528	388	480	532	582	465	178	220	12.6	5.82	4.84
Manganese	7439-96-5	mg/kg	621	540	431	514	475	443	354	442	257	226	216
Mercury	7439-97-6	mg/kg	0.979	1.03	0.968	1.35	1.28	2.17	0.864	1.23	0.0314 J	0.233 U	0.225 U
Nickel	7440-02-0	mg/kg	49.9	43.1	41.6	45.6	46.1	51.9	25.1	26.7	7.75	6.76	6.09
Selenium	7782-49-2	mg/kg	6.16 J	6.59 J	7.72 J	7.54 J	6.55 J	10.8	5.2 J	6.34 J	1.96 J	1.54 J	1.74 J
Thallium	7440-28-0	mg/kg	13.7 U	12.7 U	12.3 U	13.9 U	13 U	12.9 U	9.68 U	11 U	7.22 U	7.08 U	7.03 U
Vanadium	7440-62-2	mg/kg	47.4	40.7	40.4	44.9	45.5	42.1	26.4	30.1	13.1	12.7	11.2
Zinc	7440-66-6	mg/kg	893	708	817	865	933	1390	629	586	73.7	53.2	49.8
Cyanide	57-12-5	mg/kg	1.1 J	1.6	1.3	1.7	1.4	2.1	1.6 J	0.96 U	0.63 U	0.6 U	0.58 U

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-009 SD-009-10.5/11.8 5/13/2015	KKMB-SD-010 SD-010-0.0/0.5 5/14/2015	KKMB-SD-010 SD-010-0.5/1.5 5/14/2015	KKMB-SD-010 SD-010-1.5/2.5 5/14/2015	KKMB-SD-010 SD-010-2.5/3.5 5/14/2015	KKMB-SD-010 SD-010-3.5/5.0 5/14/2015	KKMB-SD-011 SD-011-0.0/0.5 5/13/2015	KKMB-SD-011 SD-011-0.5/1.5 5/13/2015	KKMB-SD-011 SD-011-1.5/2.5 5/13/2015	KKMB-SD-011 SD-011-2.5/3.1 5/13/2015	KKMB-SD-011 SD-011-3.1/4.0 5/13/2015
Metals													
Aluminum	7429-90-5	mg/kg	3350	12100	14900	13400	15900	15000	14200	13700	17600	16700	15700
Antimony	7440-36-0	mg/kg	4.7 U	1.09 J	1.65 J	1.5 J	0.862 J	1.47 J	8.79 U	7.96 U	8.03 U	7.95 U	6.47 U
Arsenic	7440-38-2	mg/kg	2.99 J	11.5	15.6	18.3	16.3	20.4	14.5	13.8	18.2	16.1	6.44 J
Barium	7440-39-3	mg/kg	21.1	141	159	155	162	158	122	116	210	137	97.9
Beryllium	7440-41-7	mg/kg	0.167 J	0.751	0.911	1.43	1.13	1.1 J	0.796	0.739	0.864	0.868	0.693
Cadmium	7440-43-9	mg/kg	0.163 J	4.42	6.82	7.34	7.34	10.1	4.02	4.24	6.82	5.81	0.426 J
Chromium	7440-47-3	mg/kg	6.32	169	351	412	433	386	146	158	370	255	29.2
Cobalt	7440-48-4	mg/kg	3.39	8.32	10.5	9.9	10.2	10	8.35	8.33	9.63	8.78	8.12
Copper	7440-50-8	mg/kg	9.55	97.4	124	123	122	123 J	92.5	89.5	119	93.7	20.4
Lead	7439-92-1	mg/kg	4.91	209	280	297	344	400	152	164	295	228	11.6
Manganese	7439-96-5	mg/kg	230	588	634	628	634	614	581	559	612	630	733
Mercury	7439-97-6	mg/kg	0.225 U	0.536	0.619	0.78	0.757	0.862	0.499	0.495	0.577	0.591	0.022 J
Nickel	7440-02-0	mg/kg	6.65	26.2	37.7	34.9	37.9	39.1	26.3	26.3	34.4	32.2	21.7
Selenium	7782-49-2	mg/kg	1.69 J	4.86 J	7.38 J	4.63 J	6.76 J	5.07 J	4.67 J	5.16 J	4.16 J	4.81 J	3.59 J
Thallium	7440-28-0	mg/kg	7.05 U	2.25 J	1.95 J	1.72 J	2.01 J	2.4 J	2.02 J	2.04 J	1.68 J	1.93 J	1.82 J
Vanadium	7440-62-2	mg/kg	13	35.4	51.3	44.8	50.9	47	30.3	32.2	40.6	39.1	31.9
Zinc	7440-66-6	mg/kg	49.9	442	654	646	670	729	429	432	641	537	69.4
Cyanide	57-12-5	mg/kg	0.58 U	0.74 J	0.83 J	0.9 J	0.41 J	0.7 J	0.67 J	0.47 J	1.1	0.79 J	0.77 U

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-012 SD-012-0.0/0.5 5/14/2015	KKMB-SD-012 SD-012-0.5/1.5 5/14/2015	KKMB-SD-012 SD-012-1.5/2.5 5/14/2015	KKMB-SD-012 SD-012-2.5/3.5 5/14/2015	KKMB-SD-012 SD-012-3.5/4.5 5/14/2015	KKMB-SD-012 SD-012-4.5/5.5 5/14/2015	KKMB-SD-012 SD-012-5.5/6.5 5/14/2015	KKMB-SD-012 SD-012-6.5/7.5 5/14/2015	KKMB-SD-012 SD-012-7.5/8.5 5/14/2015	KKMB-SD-012 SD-012-8.5/9.5 5/14/2015	KKMB-SD-012 SD-012-9.5/10.5 5/14/2015
Metals													
Aluminum	7429-90-5	mg/kg	15800	12900	15100	17000	18000	17900	15600	15300	17300	18900	15400
Antimony	7440-36-0	mg/kg	8.5 U	7.97 U	7.26 U	7.37 U	3.93 J	6.43 J	6.87 J	4.72 J	5.24 J	4.36 J	3.28 J
Arsenic	7440-38-2	mg/kg	11.8	12.3	13.7	15.9	27	27.8	30.1	47.9	46.8	38.6	37.4
Barium	7440-39-3	mg/kg	117	113	121	132	180	170	161	164	182	179	169
Beryllium	7440-41-7	mg/kg	0.722	0.622	0.704	0.727	0.951	0.983	0.915	0.863	0.902	0.935	0.887
Cadmium	7440-43-9	mg/kg	3.49	4.01	4.99	5.09	11.6	11.7	11.6	34.9	18.3	9.21	7.05
Chromium	7440-47-3	mg/kg	122	144	186	211	347	287	316	370	303	354	387
Cobalt	7440-48-4	mg/kg	9.29	8.45	9.07	9.62	10.6	10.4	9.48	8.72	9.49	9.43	8.02
Copper	7440-50-8	mg/kg	83.6	89.4	99.7	108	129	131 J	129	153	135	111	110
Lead	7439-92-1	mg/kg	159	175	211	220	383	393	372	351	376	296	347
Manganese	7439-96-5	mg/kg	572	533	551	555	522	461	438	401	435	435	409
Mercury	7439-97-6	mg/kg	0.411 J	0.472	1.06	0.516	1.33	1.47	1.5	2.28	2.09	2.11	2.41
Nickel	7440-02-0	mg/kg	28.8	27.6	30.7	34.3	45.1	42.9	41.7	39.3	41.4	35.8	29.4
Selenium	7782-49-2	mg/kg	8.5 U	7.97 U	7.26 U	7.37 U	8.18 U	7.8 U	7.81 U	7.04 J	7.14 J	7.26 U	6.63 J
Thallium	7440-28-0	mg/kg	12.7 U	12 U	10.9 U	11.1 U	12.3 U	11.7 U	11.7 U	2.73 J	3.47 J	2.9 J	11.1 U
Vanadium	7440-62-2	mg/kg	30.5	27.4	31.4	34.1	36.6	36.6	33.4	32.1	33.7	35.7	29.8
Zinc	7440-66-6	mg/kg	445	469	538	594	757	802	806	1450	1060	750	720
Cyanide	57-12-5	mg/kg	0.6 J	0.99 U	0.91 U	0.41 J	0.55 J	1.3	0.73 J	2.9	2	1.9	1.5

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-012 SD-012-10.5/12.2 5/14/2015	KKMB-SD-013 SD-013-0.0/0.5 5/14/2015	KKMB-SD-013 SD-013-0.5/1.5 5/14/2015	KKMB-SD-013 SD-013-1.5/2.5 5/14/2015	KKMB-SD-013 SD-013-2.5/3.5 5/14/2015	KKMB-SD-013 SD-013-3.5/4.5 5/14/2015	KKMB-SD-013 SD-013-4.5/5.5 5/14/2015	KKMB-SD-013 SD-013-5.5/6.5 5/14/2015	KKMB-SD-013 SD-013-6.5/7.5 5/14/2015	KKMB-SD-013 SD-013-7.5/8.5 5/14/2015	KKMB-SD-013 SD-013-8.5/9.5 5/14/2015
Metals													
Aluminum	7429-90-5	mg/kg	12600	15900	15300	15600	14900	17700	14900	17000	12600	16300	11600
Antimony	7440-36-0	mg/kg	6.31 U	8.22 U	7.81 U	7.23 U	7.49 U	7.5 UJ	7.48 U	0.871 J	2.13 J	3.06 J	3.12 J
Arsenic	7440-38-2	mg/kg	9.62	15.3	15.8	15.2	15	15.9	14.6	19.3	55.6	38.8	49.3
Barium	7440-39-3	mg/kg	82	144	141	142	143	154	139	156	193	178	165
Beryllium	7440-41-7	mg/kg	0.572	0.876	0.834	0.867	0.887	0.881	0.794	0.871	0.992	1.05	0.817
Cadmium	7440-43-9	mg/kg	0.825 J	5.36	5.4	5.58	5.52	6.47	5.89	7.38	37.8	16.5	29.9
Chromium	7440-47-3	mg/kg	152	214	232	225	222	316	325	398	334	309	388
Cobalt	7440-48-4	mg/kg	7.39	9.08	9.35	9.3	9.1	9.97	9.34	10.1	7.87	9.45	7.99
Copper	7440-50-8	mg/kg	31.4	112	118	121	115	129	121	130	227	169	191
Lead	7439-92-1	mg/kg	64.6	205	217	224	224	274	262	312	336	352	404
Manganese	7439-96-5	mg/kg	510	657	629	617	607	639	569	597	368	442	409
Mercury	7439-97-6	mg/kg	0.519	0.565	0.687	0.465	0.535	0.472 J	0.535	0.654	1.19	1.77	2.25
Nickel	7440-02-0	mg/kg	21.1	29.4	30.7	31.5	30	34.2	31.8	36.6	39.7	40.8	35.6
Selenium	7782-49-2	mg/kg	6.31 U	7.04 J	5.3 J	4.83 J	6.21 J	5.47 J	6.48 J	5.86 J	10.4	7.59	9.62
Thallium	7440-28-0	mg/kg	9.46 U	2.1 J	1.74 J	1.92 J	1.83 J	1.76 J	1.86 J	2.47 J	3.34 J	2.73 J	2.81 J
Vanadium	7440-62-2	mg/kg	23.1	35.6	36.1	35.6	34	40.4	37.1	41.1	30.7	38.7	28.2
Zinc	7440-66-6	mg/kg	221	524	544	565	551	651	606	682	1630	1000	1430
Cyanide	57-12-5	mg/kg	0.61 J	0.77 J	0.54 J	0.73 J	0.69 J	0.71 J	0.67 J	0.65 J	1.6	4.1	2.6

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-2. Analytical Results for Inorganics

Kinnickinnic River Mooring Basin Site Characterization

	CAS No.	Unit	KKMB-SD-013 SD-013-9.5/10.5 5/14/2015	KKMB-SD-013 SD-013-10.5/11.5 5/14/2015	KKMB-SD-013 SD-013-11.5/13.0 5/14/2015	KKMB-SD-010 TX-010-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.5/5.0 5/14/2015	KKMB-SD-014 TX-014-0.0/0.5 5/14/2015	KKMB-SD-014 TX-014-0.5/5.0 5/14/2015
Metals										
Aluminum	7429-90-5	mg/kg	11400	13700	13200	12700	13900	17000	17900	16400
Antimony	7440-36-0	mg/kg	2.53 J	2.94 J	2.84 J	9.25 U	8.75 U	7.23 U	11.5 U	7.44 U
Arsenic	7440-38-2	mg/kg	34.1	33.1	39.8	12.2	12.6	15	14.6	19.2
Barium	7440-39-3	mg/kg	171	182	184	109	113	121	138	131
Beryllium	7440-41-7	mg/kg	0.788	0.848	0.819	0.585	0.683	0.693	0.782	0.839
Cadmium	7440-43-9	mg/kg	10.1	9.34	16.9	3.47	3.59	4.85	2.81 J	8.18
Chromium	7440-47-3	mg/kg	278	380	312	126	132	176	109	346
Cobalt	7440-48-4	mg/kg	7.53	8.48	8.48	7.96	8.32	8.92	10.6	9.51
Copper	7440-50-8	mg/kg	126	126	148	71.4	80.5	93.9	108	106
Lead	7439-92-1	mg/kg	297	300	340	145	155	198	175	397
Manganese	7439-96-5	mg/kg	432	462	448	555	552	528	647	550
Mercury	7439-97-6	mg/kg	1.66	1.86	1.74	0.447 J	0.542	0.78	0.262 J	0.805
Nickel	7440-02-0	mg/kg	27.5	32.8	37.5	24.5	27.7	30.4	32.5	38.3
Selenium	7782-49-2	mg/kg	8.06	7.92	9.48	3.53 J	3.28 J	3.38 J	4.69 J	2.2 J
Thallium	7440-28-0	mg/kg	2.11 J	2.39 J	2.83 J	2.36 J	2.07 J	1.72 J	2.73 J	1.71 J
Vanadium	7440-62-2	mg/kg	28.5	32.8	31.4	25.8	27.3	31.9	34.5	47.2
Zinc	7440-66-6	mg/kg	646	713	936	403	436	520	530	691
Cyanide	57-12-5	mg/kg	1.4	2.1	1.7	0.6 J	0.55 J	0.89 U	0.87	1.2

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect

"0.0/0.5" represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and
Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-001 SD-001-0.0/0.5 5/14/2015	KKMB-SD-002 SD-002-0.0/0.5 5/14/2015	KKMB-SD-002 SD-002-0.5/1.5 5/14/2015	KKMB-SD-002 SD-002-1.5/2.5 5/14/2015	KKMB-SD-002 SD-002-2.5/3.9 5/14/2015	KKMB-SD-003 SD-003-0.0/0.5 5/14/2015	KKMB-SD-003 SD-003-0.5/1.5 5/14/2015	KKMB-SD-003 SD-003-1.5/2.5 5/14/2015	KKMB-SD-003 SD-003-2.5/3.5 5/14/2015	KKMB-SD-003 SD-003-3.5/4.5 5/14/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	4 U	9.5	15.8	9	8	21.8	50.8	25.3	5	19
Cadmium	µmol/g	0.0215 U	0.0384	0.0345	0.0274	0.0151	0.0499	0.0602	0.0131	0.00795 J	0.00675
Copper	µmol/g	0.146	0.744	0.468	0.435	0.586	0.53	0.353	0.321	0.241	0.281
Lead	µmol/g	0.0373	1.05	1.12	1.13	0.649	1.16	1.18	0.557	0.367	0.382
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.0954	0.2	0.223	0.143	0.237	0.432	0.209	0.172	0.088	0.257
Silver	µmol/g	0.0224 U	0.00446 U	0.00435 U	0.00428 U	0.0187 U	0.00413 U	0.00429 U	0.00389 U	0.0156 U	0.0176 U
Zinc	µmol/g	0.553	6.94	7.72	7.53	5.41	8.31	8.85	4.09	3.02	3.43
Wet Chemistry											
Total Organic Carbon	mg/kg	70500	97300	78100	73100	53900	46700	74000	57600	19900	45500
Moisture, percent	%	49.5	47.7	46.6	47.9	39.7	45.2	48.2	42.9	29	36.1

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-003 SD-003-4.5/5.6 5/14/2015	KKMB-SD-003 SD-003-5.6/5.9 5/14/2015	KKMB-SD-004 SD-004-0.0/0.5 5/13/2015	KKMB-SD-004 SD-004-0.5/1.5 5/13/2015	KKMB-SD-004 SD-004-1.5/2.3 5/13/2015	KKMB-SD-004 SD-004B-0.5/1.5 5/13/2015	KKMB-SD-004 SD-004B-1.5/3.8 5/13/2015	KKMB-SD-005 SD-005-0.0/0.5 5/13/2015	KKMB-SD-005 SD-005-0.5/1.5 5/13/2015	KKMB-SD-005 SD-005-1.5/2.5 5/13/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	24.9	3.3 U	2.8 J	3.5 UJ	3.3 U	3.4 U	3.4 U	12.7	30.4	23.7
Cadmium	µmol/g	0.0138	0.018 U	0.0027 J	0.00248 J	0.00246 J	0.00214 J	0.00231 J	0.047	0.0397	0.106
Copper	µmol/g	0.602	0.0517 J	0.128	0.148	0.146	0.148	0.122	0.917	0.903	0.505
Lead	µmol/g	0.815	0.0388	0.149	0.0437	0.0404 J	0.0353	0.0295 J	1.03	1.68	0.976
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.186	0.0938	0.135	0.0846	0.0789 J	0.232	0.126	0.496	0.272	0.254
Silver	µmol/g	0.00402 U	0.0188 U	0.0194 U	0.00181 J	0.002 J	0.00168 J	0.00172 J	0.00466 U	0.0586	0.0046 U
Zinc	µmol/g	7.68	0.452	0.702	0.494	0.473	0.442	0.455	6.18	6.88	9.08
Wet Chemistry											
Total Organic Carbon	mg/kg	67600	23200	23700	32000	26000	30000	32100	46100	71000	43100
Moisture, percent	%	45.1	39.2	39.9	43.2	40.2	41.2	41.5	51.8	52.1	50

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-005 SD-005-2.5/3.5 5/13/2015	KKMB-SD-005 SD-005-3.5/4.5 5/13/2015	KKMB-SD-005 SD-005-4.5/5.5 5/13/2015	KKMB-SD-005 SD-005-5.5/6.4 5/13/2015	KKMB-SD-006 SD-006-0.0/0.5 5/11/2015	KKMB-SD-006 SD-006-0.5/1.5 5/11/2015	KKMB-SD-006 SD-006-1.5/2.5 5/11/2015	KKMB-SD-006 SD-006-2.5/3.5 5/11/2015	KKMB-SD-006 SD-006-3.5/4.5 5/11/2015	KKMB-SD-006 SD-006-4.5/5.5 5/11/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	4.8	2.5 U	2.8 U	4.8 UJ	24.2	9.6	19.3	30.8	11.4	13.1
Cadmium	µmol/g	0.0274	0.00267 U	0.00308 U	0.00141 J	0.093	0.031	0.0288	0.0813	0.0444	0.0595
Copper	µmol/g	0.478	0.0331	0.0741	0.134	0.734	0.534	0.532	1.05	0.834	1.01
Lead	µmol/g	0.358	0.0103	0.0104	0.0201 J	0.786	0.305	0.616	0.988	1.71	1.22
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.253	0.0893	0.145	0.063	0.262	0.168	0.196	0.3	0.183	0.243
Silver	µmol/g	0.0177 U	0.00278 U	0.00321 U	0.00545 UJ	0.00452 U	0.0217 U	0.00412 U	0.00431 U	0.00492	0.00405 U
Zinc	µmol/g	3.86	0.138	0.153	0.377 J	8.37	3.06	3.69	7.88	7.29	7.27
Wet Chemistry											
Total Organic Carbon	mg/kg	25900	619	19700	62800	48700	36400	54200	56100	50900	66700
Moisture, percent	%	36.4	19.2	27.7	58.3	50.1	47.5	45.8	48.6	41.8	44.6

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and
Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-006 SD-006-5.5/6.5 5/11/2015	KKMB-SD-006 SD-006-6.5/7.5 5/11/2015	KKMB-SD-006 SD-006-7.5/8.0 5/11/2015	KKMB-SD-007 SD-007-0.0/0.5 5/11/2015	KKMB-SD-007 SD-007-0.5/1.5 5/11/2015	KKMB-SD-007 SD-007-1.5/2.5 5/11/2015	KKMB-SD-007 SD-007-2.5/3.5 5/11/2015	KKMB-SD-007 SD-007-3.5/4.0 5/11/2015	KKMB-SD-008 SD-008-0.0/0.5 5/11/2015	KKMB-SD-008 SD-008-0.5/1.5 5/11/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	2.5 J	3.2 J	2.5 U	9.7	8.2	3.1 J	6.6	12.9	38.3	22.9
Cadmium	µmol/g	0.01	0.00243 J	0.0135 U	0.0214	0.0248	0.027	0.0214	0.0438	0.0723	0.0597
Copper	µmol/g	0.336	0.229 J	0.135	0.522	0.691	0.595	0.562	1.14	0.598	0.999
Lead	µmol/g	0.681	0.115	0.128	0.505	0.579	0.594	0.504	0.872	1.74	1.1
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.102	0.375 J	0.0516 J	0.218	0.222	0.13	0.135	0.179	0.433	0.345
Silver	µmol/g	0.0035 U	0.00305 UJ	0.0141 U	0.00519 U	0.00525 U	0.00456 U	0.00413 U	0.0035 U	0.00177 J	0.00444 U
Zinc	µmol/g	2.45	0.684 J-	0.558	3.98	4.51	4.22	3.24	5.65	8.66	6.25
Wet Chemistry											
Total Organic Carbon	mg/kg	66200	30100	13300	55300	57400	49900	39000	36500	54100	59200
Moisture, percent	%	34.5	27.1	19.6	57.2	56.8	49.7	44.3	35.2	55.6	49.2

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-008 SD-008-1.5/2.5 5/11/2015	KKMB-SD-008 SD-008-2.5/3.5 5/11/2015	KKMB-SD-008 SD-008-3.5/4.6 5/11/2015	KKMB-SD-008 SD-008-4.6/5.3 5/11/2015	KKMB-SD-009 SD-009-0.0/0.5 5/13/2015	KKMB-SD-009 SD-009-0.5/1.5 5/13/2015	KKMB-SD-009 SD-009-1.5/2.5 5/13/2015	KKMB-SD-009 SD-009-2.5/3.5 5/13/2015	KKMB-SD-009 SD-009-3.5/4.5 5/13/2015	KKMB-SD-009 SD-009-4.5/5.5 5/13/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	32.6	7	51.4	2.3 U	17.3	46.2	34.9	51.5	79.2	54.5
Cadmium	µmol/g	0.0201	0.00711	0.00981	0.0122 U	0.0902	0.0607	0.0868	0.077	0.0719	0.193
Copper	µmol/g	0.899	0.627	0.909	0.135	0.643	0.406	0.499	0.502	0.472	0.451
Lead	µmol/g	0.662	0.348	0.527	0.0301	1.87	1.06	1.34	1.43	1.35	1.05
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.166	0.425	0.176	0.173	0.349	0.302	0.289	0.396	0.268	0.287
Silver	µmol/g	0.00437 U	0.00402 U	0.00412 U	0.0127 U	0.00537 U	0.00514 U	0.00495 U	0.00542 U	0.00505 U	0.00504 U
Zinc	µmol/g	5.78	3.52	4.87	0.486	9.94	6.18	8.73	9.79	8.71	17
Wet Chemistry											
Total Organic Carbon	mg/kg	53400	52600	44900	3600	65500	49700	68600	72400	56700	87600
Moisture, percent	%	47	43.7	44.3	13	58	55	53.7	57.6	55.2	55.8

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-009 SD-009-5.5/6.5 5/13/2015	KKMB-SD-009 SD-009-6.5/7.5 5/13/2015	KKMB-SD-009 SD-009-7.5/8.5 5/13/2015	KKMB-SD-009 SD-009-8.5/9.5 5/13/2015	KKMB-SD-009 SD-009-9.5/10.5 5/13/2015	KKMB-SD-009 SD-009-10.5/11.8 5/13/2015	KKMB-SD-010 SD-010-0.0/0.5 5/14/2015	KKMB-SD-010 SD-010-0.5/1.5 5/14/2015	KKMB-SD-010 SD-010-1.5/2.5 5/14/2015	KKMB-SD-010 SD-010-2.5/3.5 5/14/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	11.7	12.7	11.5	2.4 U	2.4 U	2.4 U	6.3	7.5	14.6	19.6
Cadmium	µmol/g	0.0431	0.0507	0.0353	0.0131 U	0.00097 J	0.0132 U	0.0251	0.0475	0.0405	0.044
Copper	µmol/g	0.371	0.574	0.163	0.0801	0.0789	0.0835	0.599	0.82	0.519	0.978
Lead	µmol/g	0.469	1.26	0.396	0.0247	0.0189	0.0245	0.563	0.96	0.889	1.23
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.131	0.166	0.122	0.0566	0.0478	0.0828	0.284	0.194	0.214	0.444
Silver	µmol/g	0.0188 U	0.00449 U	0.0142 U	0.0136 U	0.0137 U	0.0138 U	0.0049 U	0.00478 U	0.00469 U	0.00432 U
Zinc	µmol/g	4.62	5.57	3.12	0.518	0.498	0.456	4.44	6.39	6.16	8.22
Wet Chemistry											
Total Organic Carbon	mg/kg	65300	58900	6850	2160	2190	1740	48800	47800	46800	72300
Moisture, percent	%	40.4	48.2	20.9	16.9	16.3	16.6	54.9	53.2	50.9	48.7

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-010 SD-010-3.5/5.0 5/14/2015	KKMB-SD-011 SD-011-0.0/0.5 5/13/2015	KKMB-SD-011 SD-011-0.5/1.5 5/13/2015	KKMB-SD-011 SD-011-1.5/2.5 5/13/2015	KKMB-SD-011 SD-011-2.5/3.1 5/13/2015	KKMB-SD-011 SD-011-3.1/4.0 5/13/2015	KKMB-SD-012 SD-012-0.0/0.5 5/14/2015	KKMB-SD-012 SD-012-0.5/1.5 5/14/2015	KKMB-SD-012 SD-012-1.5/2.5 5/14/2015	KKMB-SD-012 SD-012-2.5/3.5 5/14/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	19.9 J-	5	5.4	8.7	7.7	3.2 U	4.2 J	3.8 J	1.3 J	5.6
Cadmium	µmol/g	0.0596	0.0265	0.0288	0.0381	0.0521	0.0179 U	0.0259	0.0265	0.0303	0.029
Copper	µmol/g	0.738	0.848	0.779	1.07	1.08	0.093	0.653	0.639	0.674	0.555
Lead	µmol/g	1.31 J	0.548	0.643	0.789	1.06	0.0353	0.699	0.636	0.67	0.778
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.397 J-	0.495	0.137	0.177	0.205	0.225	0.14	0.147	0.146	0.264
Silver	µmol/g	0.00415 UJ	0.003 J	0.00239 J	0.00438 J	0.00333 J	0.0186 U	0.00482 U	0.00458 U	0.00424 U	0.0212 U
Zinc	µmol/g	7.92	4.48	4.84	5.83	7.24	0.32	4.56	5.01	5.05	5.26
Wet Chemistry											
Total Organic Carbon	mg/kg	60200	42900	45800	44400	68700	16800	51000	53200	40500	42800
Moisture, percent	%	46.4	55.4	51.7	50.7	49.7	38.2	53.4	50.3	46	47.3

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-012 SD-012-3.5/4.5 5/14/2015	KKMB-SD-012 SD-012-4.5/5.5 5/14/2015	KKMB-SD-012 SD-012-5.5/6.5 5/14/2015	KKMB-SD-012 SD-012-6.5/7.5 5/14/2015	KKMB-SD-012 SD-012-7.5/8.5 5/14/2015	KKMB-SD-012 SD-012-8.5/9.5 5/14/2015	KKMB-SD-012 SD-012-9.5/10.5 5/14/2015	KKMB-SD-012 SD-012-10.5/12.2 5/14/2015	KKMB-SD-013 SD-013-0.0/0.5 5/14/2015	KKMB-SD-013 SD-013-0.5/1.5 5/14/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	10.2	27.8	31.3	24.3	36	15.4	13.5	1.9 J	6.5	3.9 J
Cadmium	µmol/g	0.0604	0.0714 J	0.0802	0.2	0.236	0.0504	0.052	0.00674	0.0338	0.0292
Copper	µmol/g	0.507	0.588 J	0.418	0.401	0.492	0.491	0.247	0.263	0.629	0.687
Lead	µmol/g	1.22	1.43	1.51	1.35	1.4	1.14	1.14	0.337	0.711	0.619
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.409	0.299 J	0.289	0.322	0.256	0.354	0.174	0.152	0.152	0.23
Silver	µmol/g	0.000978 J	0.00115 J	0.00174 J	0.00447 U	0.00435 U	0.00417 U	0.0043 U	0.0178 U	0.00487 U	0.00463 U
Zinc	µmol/g	6.47	8.08	9.18	21.3	17.3	7.05	8.12	2.64	5.23	4.67
Wet Chemistry											
Total Organic Carbon	mg/kg	47800	94300	35100	121000	95500	81800	91600	26700	54700	54800
Moisture, percent	%	52.5	50.2	49.3	49.4	49	46.5	47.2	37.2	53.2	49.8

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-013 SD-013-1.5/2.5 5/14/2015	KKMB-SD-013 SD-013-2.5/3.5 5/14/2015	KKMB-SD-013 SD-013-3.5/4.5 5/14/2015	KKMB-SD-013 SD-013-4.5/5.5 5/14/2015	KKMB-SD-013 SD-013-5.5/6.5 5/14/2015	KKMB-SD-013 SD-013-6.5/7.5 5/14/2015	KKMB-SD-013 SD-013-7.5/8.5 5/14/2015	KKMB-SD-013 SD-013-8.5/9.5 5/14/2015	KKMB-SD-013 SD-013-9.5/10.5 5/14/2015	KKMB-SD-013 SD-013-10.5/11.5 5/14/2015
AVS/SEM											
Acid Volatile Sulfide	µmol/g	2.5 J	2.8 J	8.8	12.2	7.2	2.8 J	16.1	3.2 J	4.2	1.8 J
Cadmium	µmol/g	0.0329	0.0244	0.0327 J	0.0375	0.0336	0.0608	0.284	0.136	0.108	0.0474
Copper	µmol/g	1.01	0.48	0.732 J	0.681	0.517	0.634	0.448	0.871	0.608	0.347
Lead	µmol/g	0.791	0.518	0.75	0.876	0.813	1.14	1.19	1.05	1.03	0.641
Mercury	µmol/g	R	R	R	R	R	R	R	R	R	R
Nickel	µmol/g	0.177	0.108	0.205 J	0.214	0.178	0.332	0.371	0.258	0.205	0.197
Silver	µmol/g	0.00435 U	0.00417 U	0.00227 R	0.00446 U	0.0043 U	0.00412 U	0.00434 U	0.00425 U	0.0041 U	0.0207 U
Zinc	µmol/g	5.63	3.68	5.73	6.86	5.44	6.83	18.7	12.9	9.3	4.39
Wet Chemistry											
Total Organic Carbon	mg/kg	52000	59100	56500	77900	63000	117000	106000	127000	134000	101000
Moisture, percent	%	46.8	46.6	48.7	48.6	46.5	45.9	46.7	46	45.1	44.7

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)

Table E-3. Analytical Results for Acid Volatile Sulfide and Simultaneously Extracted Metals (AVS/SEM)

Kinnickinnic River Mooring Basin Site Characterization

	Unit	KKMB-SD-013 SD-013-11.5/13.0 5/14/2015	KKMB-SD-010 TX-010-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.0/0.5 5/14/2015	KKMB-SD-012 TX-012-0.5/5.0 5/14/2015	KKMB-SD-014 TX-014-0.0/0.5 5/14/2015	KKMB-SD-014 TX-014-0.5/5.0 5/14/2015
AVS/SEM							
Acid Volatile Sulfide	µmol/g	14.3	5.6	2.5 J	10.3	10.4	15.7
Cadmium	µmol/g	0.0424	0.0217	0.0244	0.0344	0.0188	0.0536
Copper	µmol/g	0.478	0.58	0.668	0.511	0.818	0.558
Lead	µmol/g	0.928	0.521	0.629	0.806	0.68	1.3
Mercury	µmol/g	R	R	R	R	R	R
Nickel	µmol/g	0.174	0.132	0.218	0.173	0.254	0.207
Silver	µmol/g	0.00422 U	0.00523 U	0.00495 U	0.00407 U	0.00648 U	0.00417 U
Zinc	µmol/g	5.84	3.85	4.33	5.15	5.39	7.4
Wet Chemistry							
Total Organic Carbon	mg/kg	171000	38300	60900	53300	34700	55300
Moisture, percent	%	46.1	57.2	54.3	45.2	65.5	46.8

Notes:

mg/kg = milligrams per kilogram; µg/kg = micrograms per kilogram;

J = Estimated; U = Nondetect; UJ = Estimated nondetect; R = Rejected

0.0/0.5 represents sample intervals below sediment surface (bss)