

**Phase II Data Evaluation Report
Eighteen Mile Creek Superfund Site
Operable Unit 3 (OU3)
Remedial Investigation/Feasibility Study
Niagara County, New York**

DRAFT FINAL

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List of Abbreviations and Acronyms

%D	percent difference
%RSD	percent relative standard deviation
AVS	acid volatile sulfide
BERA	baseline ecological risk assessment
BHHRA	baseline human health risk assessment
BGS	below ground surface
CAS	Chemical Abstract Service
CCV	continuing calibration verification
CLP	Contract Laboratory Program
CO ₂	carbon dioxide
COPC	chemicals of potential concern
CRQL	contract required quantitation limit
CSM	conceptual site model
DER	Data Evaluation Report
DHC	<i>Dehalococcoides</i>
DMC	deuterated monitoring compounds
DO	dissolved oxygen
DOC	dissolved organic carbon
E & E	Ecology and Environment, Inc., member of WSP
EDD	electronic data deliverable
EPA	U.S. Environmental Protection Agency
FS	feasibility study
GPS	Global Positioning System
HWSB/HWSS	Hazardous Waste Support Branch/Hazardous Waste and Superfund Staff
IDW	investigation-derived waste
LCS	laboratory control sample
LiDAR	light detection and ranging

List of Abbreviations and Acronyms (cont.)

LSASD	Laboratory Services and Applied Sciences Division
µm	microns
µg/L	micrograms per liter
MDL	method detection limit
MEE	methane, ethylene, ethane
mg/kg	milligrams per kilogram
MS	matrix spike
MSD	matrix spike duplicate
NAVD 88	North American Vertical Datum of 1988
NYSDEC	New York State Department of Environmental Conservation
ORP	oxidation-reduction potential
OU	operable unit
PAH	polynuclear aromatic hydrocarbon
PCB	polychlorinated biphenyl
PCE	tetrachloroethene
Popli	Popli Design Group
ppm	part per million
PQL	practical quantitation limit
QAPP	Quality Assurance Project Plan
QA	quality assurance
QC	quality control
RI	remedial investigation
ROD	Record of Decision
RPD	relative percent difference
RSL	regional screening level
SC	screening criterion
SCO	soil cleanup objective
SDG	sample delivery group
SEM	simultaneously extracted metals
SIM	selected ion monitoring
SVOC	semivolatile organic compound
TAL	target analyte list
TCE	trichloroethylene

List of Abbreviations and Acronyms (cont.)

TCL	target compound list
TDS	total dissolved solids
TOC	total organic carbon
TSS	total suspended solids
USACE	U.S. Army Corps of Engineers
VFA	volatile fatty acids
VOC	volatile organic compound

1

Introduction

The Eighteen Mile Creek Superfund Site is located in Niagara County, New York, on the south side of Lake Ontario (see Figure 1-1). The Eighteen Mile Creek Site extends from Lockport, New York, northward to the discharge of the creek into Lake Ontario in Olcott, New York. The site contains four operable units (OUs) (see Figure 1-2). Eighteen Mile Creek within OU3 has been divided into smaller investigation areas known as Reaches 1 through 9 (see Figure 1-2).

Ecology and Environment, Inc., member of WSP (hereafter referred to as E & E) is conducting a remedial investigation (RI)/feasibility study (FS) for OU3 under the U.S. Army Corps of Engineers (USACE), Kansas City District, Contract No. W912DQ-15-D-3015, Delivery Order W912DQ17F3011. The primary objectives of the RI/FS are to:

- Assess the nature and extent of polychlorinated biphenyls (PCB Aroclors), semivolatile organic compounds (SVOCs), and metals in sediments within OU3;
- Assess potential impacts (including nature and extent) of contamination in sediment in the surface water, creek sediment, biota, and creek bank/flood-plain soils within OU3;
- Refine the preliminary conceptual site model (CSM) based on results of the field investigation and community outreach;
- Provide data to support the development of a baseline human health risk assessment (BHHRA) and a baseline ecological risk assessment (BERA) to determine whether unacceptable risks are present;
- Investigate creek bank soils in industrial areas to assess the potential for additional sources;
- Provide data to support the completion of an FS that will develop, screen, and evaluate alternative remedial actions for addressing contamination in OU3; and
- Complete the RI/FS for contaminated groundwater originally identified as part of OU2 (groundwater in the Creek Corridor is being addressed as part of the RI/FS for OU3 in accordance with the Record of Decision [ROD] for OU2 [U.S. Environmental Protection Agency (EPA) 2017]).

The RI investigation for OU3 employs a phased data collection approach in support of the objectives above. The purpose of this Data Evaluation Report (DER) is to present the data collected as part of the Phase II field investigation. The project activities preceding the Phase II are described below.

The RI objectives were initially presented in the report entitled *Data Gap Analysis, Eighteenmile Creek Superfund Site Operable Unit 3, City of Lockport, Niagara County, New York* (the Data Gap Report) (E & E 2017). The OU3 RI Work Plan and OU3 Quality Assurance Project Plan (QAPP) build on the Data Gap Report and provide the basis for the RI work performed to date for the project (E & E 2018a, b).

The OU3 RI Phase I activities were completed in November 2018. This work is presented in two Data Evaluation Reports (DERs) titled *Phase I Data Evaluation Report, Eighteen Mile Creek Superfund Site Operable Unit 3 (OU3), Remedial Investigation/Feasibility Study, Niagara County, New York* (E & E 2019a) and *Phase I Data Evaluation Report for Fish Tissue, Eighteen Mile Creek Superfund Site, Operable Unit 3 (OU3), Remedial Investigation/Feasibility Study, Niagara County, New York* (E & E 2019b). The Phase I results were presented at a review meeting on April 23, 2019, which included representatives from EPA, USACE, New York State Department of Environmental Conservation (NYSDEC), New York State Department of Health, and United States Fish and Wildlife Service. The objective of the meeting was to determine the additional data needs (to be included in Phase II fieldwork and completion of the OU3 BHHRA, BERA, and RI. The outcome of the meeting was documented in meeting minutes and a decision document. Ultimately, the QAPP was updated as Revision 3 (July 2019) to reflect planned data collection activities for Phase II based on the decisions at the meeting (E & E 2019c). The QAPP Revision 3 included sampling at up to 10 new residential properties to support the BHHRA. The specific properties and sampling locations were included as an addendum to the QAPP Revision 3 (October 2019) and a total of 11 properties were included because one property was sampled at a historic creek oxbow to confirm suspected contamination.

The schedule for some of the phased activities described in the OU3 RI Work Plan was modified, and the sampling activities performed in 2018 were redefined as Phase IA sampling (performed in May/June 2018, also known as the spring 2018 sampling) and Phase IB sampling (performed in October/November 2018, also known as the fall 2018 sampling). The Phase II sampling activities performed in 2019 were defined as Phase IIA sampling (performed in July 2019, also known as summer 2019 sampling) and Phase IIB sampling (performed in October 2019, also known as fall 2019 sampling).

The OU3 RI Phase II activities performed and addressed in this DER consist of:

- Subcontracted survey activities:
 - Civil survey of two stream gauges within the Creek Corridor, and

- Civil survey of channel geometry cross sections completed as part of the flow monitoring program;
- Phase IIA activities:
 - Sampling/analysis for two surface water events under relatively low-flow conditions to support the sediment transport model monitoring of total suspended solids (TSS),
 - Sampling/analysis of sediment and sediment toxicity to support the BERA in both the creek and reference area,
 - Sampling/analysis of emergent aquatic insect tissues to support the BERA,
 - Sampling/analysis of co-located soil and biota (earthworm) to support the BERA at three transects (T09, T10, and T12),
 - Sampling/analysis of creek bank floodplain soil at four existing and one new transect to provide additional data for the BHHRA,
 - Sampling/analysis of one industrial soil (ID06) and one floodplain soil transect (T12) to delineate the extent of contamination; and
- Phase IIB activities:
 - Sampling/analysis for two surface water events under relatively normal flow conditions to support the sediment transport model and two surface water events under relatively high flow conditions to delineate nature of contamination,
 - Sampling/analysis of creek bank floodplain soil at 11 new transects to support the BHHRA,
 - Sampling/analysis of floodplain soil at transect (T12) to further delineate the extent of contamination,
 - Sampling/analysis of surface water to evaluate impacts from groundwater in the Creek Corridor,
 - Sampling/analysis of 19 monitoring wells in the Creek Corridor to evaluate extent of groundwater contamination and potential for natural attenuation, and
 - Collection of groundwater/surface water elevations at 19 monitoring wells and two surface water staff gauges.

A Phase II activity that has been performed but is not addressed in this DER is creek flow monitoring (continuation from Phase I). This activity is addressed in a separate memorandum (E & E 2020a).

The reference (background) area noted above for the OU3 RI is Oak Orchard Creek in Orleans County, approximately 23 miles east of Eighteen Mile Creek.

The primary purposes of this DER are to:

- Summarize subcontracted survey activities and results (see Section 2);
- Summarize sample collection, handling, and analytical procedures for sampling activities (see Section 2);
- Identify any deviations reported for sampling and analysis activities with respect to planned procedures (see Sections 2 and 4);
- Summarize the analytical results for the field samples collected (see Section 3);
- Discuss the results of the data quality evaluations associated with the sampling events (see Section 4); and
- Provide a brief, overall assessment of the results of the sampling performed to date (see Section 5).

The following appendices to this DER provide supporting information:

- Appendix A – Analytical data assessment documentation, including EPA Contract Laboratory Program (CLP) data assessments for Phase IIA (A-1) and Phase IIB (A-2) and data usability summary reports for Phase IIA (A-3) and Phase IIB (A-4).
- Appendix B – Laboratory analytical data results in spreadsheet tables.
- Appendix C – Sample collection documentation, including monitoring well purge logs (C-1); daily activity summary reports (C-2); collection log forms for industrial soils (C-3); field equipment calibration sheets (C-4); emergent aquatic insect sample data (C-5); soil invertebrate (earthworm) sample weights (C-6); collection log forms for floodplain soils (C-7) and sediments (C-8); field logbook pages (C-9); and sampling trip reports (C-10).
- Appendix D – Investigation-derived waste (IDW) documentation, including shipping manifests (D-1) and analytical results (D-2). Waste profile reports were included with the Phase I DER (EE 2019a).
- Appendix E – Civil survey results.
- Appendix F – Subcontractor analytical data packages including reports from Laboratory Services and Applied Sciences Division (LSASD; F-1); Pace analytical services for groundwater, sediment, and tissue (F-2); Aquatec Environmental for sediment toxicity; and SiREM *Dehalococcoides* for groundwater (F-4).

2

Data Collection Activities

Phase II data have been collected in accordance with the Work Plan and QAPP unless otherwise noted in this DER. This section briefly describes the Phase II work that has been performed. Methodologies used for sample handling (e.g., labeling, packaging, and custody), equipment decontamination, collection of field quality control (QC) samples, and similar supporting tasks are not described herein unless there were notable deviations from the project planning documents.

Minor variances in field methodologies that occurred during the Phase II activities were documented in the daily activity summary reports provided to the USACE, which are discussed in Section 2.8. There were no notable deviations from the Work Plan and QAPP.

OU3 RI sample locations are shown on Figure 2-1 (for Eighteen Mile Creek locations) and Figure 2-2 (for Oak Orchard background locations). Each sample point was georeferenced at the time of sampling using a handheld Global Positioning System (GPS) unit. The Geo 7X handheld data collector has 1-100-centimeter accuracy and supports signals from all existing Global Navigation Satellite System constellations and augmentation systems.

2.1 Civil Surveys – Stream Gauges

Popli Design Group (Popli), a New York State licensed civil surveyor, surveyed the locations and elevations of two stream gauges, installed by E & E, within the creek in November 2019. Elevation data was collected from the top of the stream gauges. The horizontal coordinates for each location were referenced to the New York State Plane West Zone using the North American Datum 1983 to a minimum accuracy of ± 0.1 foot, and the elevations were referenced to the North American Vertical Datum of 1988 (NAVD 88) to a minimum accuracy of ± 0.01 foot, in accordance with the QAPP. The survey report is provided in Appendix E.

Popli also completed channel geometry cross sections in support of the flow monitoring activities. The results for the channel geometry are included in the flow monitoring memorandum (E & E 2020a).

2.2 Surface Water Sampling

Surface water samples of Eighteen Mile Creek were collected during Phase IIA and Phase IIB based on flow conditions. Five locations, which include two flow

meter locations, were chosen to allow for collection during high-flow events that cover the full range of the creek. In addition, six creek locations are directly in Eighteen Mile Creek - two of the locations (OU3-EB-SW16 and OU3-GC-SW23) are representative of the East Branch and Gulf Creek tributary to Eighteen Mile Creek, respectively, to evaluate the movement of sediment at different flow events (see Figure 2-1). A surface water sample collection summary is presented in Table 2-1a.

2.2.1 Sample Collection and Methods

Sampling was performed primarily by direct bottle-fill methods to collect grab water samples within the first 12 inches of the surface. The sample container was submerged under the water to the appropriate depth and then the sample container's lid was removed. The lid was then put back onto the sample container while still submerged. Analytes that were collected using this method include: PCB Congeners, TOC, TSS, and TDS. For sample analytes that required containers that were pre-preserved (analytes metals and DOC), a separate glass container with no preservative was used to collect the sample and the sample was transferred to the pre-preserved containers. At most locations, E & E staff waded into the creek to collect samples. Samples at bridge crossings were collected using a stainless-steel Kemmerer, from which the center of the creek was accessed. Table 2-1a provides the methods used to collect each sample and the general sampling method.

Field water quality (pH, conductivity, temperature, and turbidity) was measured at the time of sampling using the instruments discussed in Section 2.2.2. Field water quality data sheets were inadvertently misplaced following Phase II field activities and approximately half of the sampling events were recorded in the field logbooks provided in Appendix C-9. The results of the sampling events are summarized in Table 3-1b.

Sample fractions requiring filtration (dissolved organic carbon [DOC], dissolved PCB congeners, and dissolved target analyte list [TAL] metals) were filtered using a peristaltic pump, 0.45-micron (μm) filter, and TeflonTM-lined tubing. For samples collected direct-fill or Kemmerer, sample fractions requiring filtration were first collected in glass containers and subsequently filtered in the field. The same glass containers were subsequently used for non-preserved analytes at the sample location.

Decontamination methods for using a stainless-steel Kemmerer water sampler are provided in Appendix C to the QAPP in SOP ENV 3.15. After collecting samples using a stainless-steel Kemmerer, the Kemmerer was decontaminated using Alconox, 10% nitric acid solution, and deionized water rinse. The Kemmerer was then wrapped in plastic sheeting for transport or storage before use at the next location.

Rinsate blank samples were collected using deionized water that had been poured over a Kemmerer into a new, clean 1-liter amber bottle and then passed through

new Teflon™-lined tubing and a new 0.45-µm filter into the appropriate sample containers. Rinsate blank samples were submitted for dissolved parameters analysis. One rinsate blank was collected using deionized water poured over and through a Kemmerer into the appropriate sample containers and submitted for total parameters analysis.

Surface water samples were collected under various flow conditions. Two surface water sampling events were conducted under what is considered a high-flow event and samples for a full suite of analytes were collected during those events. Total dissolved solid (TDS) and TSS analytes were collected for the remaining surface water events to fill data gaps for the sediment transport model. The remaining events were collected under low and medium flow conditions as shown on Table 2-1a.

2.2.2 Field Equipment Calibration and Maintenance

A Myron Ultrameter II was used to measure the following water quality parameters: pH, conductivity, and temperature. The instrument was calibrated per the instrument manual before any sampling took place if the equipment was used over the course of multiple days. Tap water was used to keep the pH sensor moist for storage overnight.

The LaMotte 2020we was used to measure turbidity. The instrument manual recommended to calibrate the instrument only if necessary; therefore, a performance check was conducted in the morning before any data was collected if the equipment was used over the course of multiple days. If the instrument response differed by 10% or more for the performance check, then a calibration was performed.

The field team did not perform field calibrations before most sampling events; however, equipment was calibrated the day before by the equipment provider, Eco-Rental Solutions. Field calibration documentation is provided in field log-books and calibration certificates in Appendix C-9.

2.2.3 Laboratory Analysis

Surface water samples were analyzed for PCB congeners (total and dissolved), TAL metals (total and dissolved), mercury (total and dissolved), and water quality (i.e., TDS, TSS, and DOC). Hardness was calculated using the metals results.

The Phase IIA surface water samples were shipped to LSASD (formally known as Division of Environmental Science and Assessment) Regional Laboratory, Edison, New Jersey, for water quality parameters.

The Phase IIB surface water samples were shipped via CLP contracted laboratories to Frontier Analytical Laboratory, El Dorado Hills, California, for high-resolution analysis of PCB congeners and LSASD's Regional Laboratory in Edison, New Jersey, for TAL metals, mercury and water quality parameters.

Sampling trip reports are provided in Appendix C-10.

2.3 Soil Sampling

2.3.1 Floodplain Soil Sampling

Creek bank floodplain soil samples were collected along 18 total properties located in three of the nine reaches. The locations were selected based on the potential for exposure to flooding as indicated by a 100-year floodplain map, community interviews, and location accessibility. Floodplain soil sampling took place during both Phase IIA and Phase IIB. Six properties that were sampled during Phase IIA were to test the contamination extent model and delineate contaminated locations observed during Phase I. In addition, sample location T14E was included to provide additional data about wetland complexes and possible contamination. Phase IIB included 11 new properties in order to satisfy the BHHRA and additional delineation (sample location T12). Transect locations are shown on Figure 2-1. Sample locations for each transect are shown on Figure 5-2. The soil sample collection summary is presented in Table 2-1b.

2.3.1.1 Sample Collection and Methods

Floodplain soil samples were collected at individual sample points on each property using a stainless-steel trowel and hand auger. Each property contained three to seven sample points (Figures 5-2a through 5-2s show the detail for individual sample points). The soil samples were collected from two or three depth intervals at each sample point. The first interval (denoted with a “Z1” suffix in the sample ID) was collected from the surface at 0 to 6 inches below ground surface (BGS) using a stainless-steel trowel. The second interval (denoted with a “Z2” suffix in the sample ID) was collected from the immediate subsurface at 6 to 12 inches BGS using a stainless-steel trowel. The third interval (denoted with a “Z3” suffix in the sample ID) was collected from the subsurface at 12 to 24 inches BGS using a stainless-steel hand auger. The soil from each interval was placed in a stainless-steel bowl, homogenized with a stainless-steel spoon, and placed into appropriate sample containers. After collection, bowls, spoons, trowels, and hand augers were decontaminated using Alconox, 10% nitric acid solution, and distilled water rinse.

The USACE determined that sample locations S05 and S06 at OU3-R7-T22E were in proximity to an historical in-filled ditch and were composed of fill material that does not reflect floodplain sediment. Sample S05 had been collected and logged but was then discarded and sample S06 was not collected.

Four rinsate blank samples were collected of deionized water passed over decontaminated bowls, spoons, trowel, and/or hand augers.

2.3.1.2 Laboratory Analysis

Floodplain soil samples were analyzed for PCB Aroclors, TAL metals, mercury, target compound list (TCL) SVOCs, and polynuclear aromatic hydrocarbons (PAHs; selected ion monitoring [SIM]). The 0-to-6-inch or 6-to-12-inch composite samples from each transect were also analyzed for total organic carbon (TOC)

and grain size. The three rinsate blank samples were analyzed for organic and inorganic parameters.

The samples were shipped via CLP laboratories to Chemtech Consulting Group in Mountainside, New Jersey, for organic and inorganic parameters and LSASD's Regional Laboratory in Edison, New Jersey, for soil quality parameter analysis.

Sampling trip reports are provided in Appendix C-10.

2.3.2 Industrial Soil Sampling

Four soil samples were collected from creek bank locations on the VanDeMark Chemical property located in Reach 8 of Eighteen Mile Creek OU3. These samples were collected to delineate and assess chemicals of potential concern (COPCs) observed during Phase I sampling at location ID06E. The sampling location is shown on Figure 2-1. Figure 5-3 shows the detail for individual sample locations. The soil sample collection summary is presented in Table 2-1b.

2.3.2.1 Sample Collection and Methods

All industrial soil samples were planned to be collected from three depth intervals at each sample location. The first interval (denoted with a "Z1" suffix in the sample ID) was collected from the surface at 0 to 6 inches BGS. The second interval (denoted with a "Z2" suffix in the sample ID) was collected from the subsurface at 6 to 24 inches BGS. The third interval (denoted with a "Z3" suffix in the sample ID) was collected from the subsurface from 24 inches up to 36 inches BGS. The surface soil samples were collected using a stainless-steel trowel and the subsurface samples were collected using a stainless-steel hand auger. After collection, bowls, spoons, trowels, and hand augers were decontaminated using Alconox, 10% nitric acid solution, and a deionized water rinse.

In all cases, subsurface sample Z3 could not be collected because the subsurface material caused refusal. As many as four attempts were made when refusal was encountered, or it was apparent that refusal was widespread. The following is a summary of sample collection:

- **ID06E-S01:** Previous sampling results at this location indicated high COPC level concentrations and additional sampling was conducted to determine if concentrations were present at lower depths. Refusal was encountered at 1.5 feet BGS and, therefore, the team collected a confirmation sample at the Z2 interval. While on-site, NYSDEC representative remarked that the location was adjacent a historical cooling water discharge structure.
- **ID06E-S02:** Refusal was encountered at 0.5 feet BGS, therefore, only interval Z1 was collected/analyzed.
- **ID06E-S03:** Refusal was encountered at 1 foot BGS, therefore, only intervals Z1 and Z2 were collected/analyzed.

- **ID06E-S04:** No sample was collected at this location because no soil was present in the general area. A collection trench backfilled with gravel is on the northside of ID06E-S01.
- **ID06E-S05:** Refusal was encountered at 0.88 feet BGS, therefore, only intervals Z1 and Z2 were collected/analyzed.

A rinsate blank was collected of deionized water passed over decontaminated bowls, spoons, trowels, and/or hand augers.

2.3.2.2 Laboratory Analysis

The industrial soil samples were analyzed for PCB Aroclors, TAL metals, mercury, TCL SVOCs, and PAHs (SIM). The rinsate blank sample was analyzed for organic and inorganic parameters.

The samples were shipped via CLP laboratories to Chemtech Consulting Group in Mountainside, New Jersey, for organic and inorganic parameters. Sampling trip reports are provided in Appendix C-10.

2.4 Creek Corridor Groundwater Investigation

The groundwater investigation in the Creek Corridor was expanded for Phase II of the OU3 RI and consisted of groundwater sampling (Phase IIB) and measurement of groundwater elevations (post-Phase IIB). Nineteen wells (11 existing on the west side of the creek wells and eight existing wells on the east side of the creek) were sampled to address groundwater contamination in the Creek Corridor as required by the OU2 ROD (EPA 2017). Locations are shown on Figure 2-3. MW-10 was planned to be sampled (for a total of 20 wells), but the well was damaged as described below, and not sampled. Wells were sampled to evaluate the potential for natural attenuation as historical trends indicate concentrations are decreasing. Two staff gauges were installed and surveyed to record surface water elevations to compare with groundwater elevations. In addition to groundwater sampling, five surface water samples were collected to evaluate volatile organic compound (VOC) contamination in the surface water within OU2.

2.4.1 Sample Collection and Methods

The 19 wells of interest (eight existing wells that were not sampled in 2018 and 11 existing wells that were previously sampled in 2018) were purged and sampled during the Phase IIB sampling event. The groundwater sample collection summary is presented in Table 2-1c.

The wells were purged and sampled using a pump and low-flow procedures. A bladder pump was used at 11 monitoring wells and a peristaltic pump was used at eight monitoring wells. A peristaltic pump is preferred because there is no need for decontamination afterwards, but its depth limitation prevented its use for most of the wells. MW-19 was collected as a grab sample using a bladder pump be-

cause of low recharge. In 2018, the well had low recharge and exhibited unusually high acetone concentrations. Monitoring well sampling purge logs are provided in Appendix C-1 and sampling methods are listed in Table 2-1c.

Groundwater purging and sampling were performed in accordance with the Work Plan and QAPP with the following exceptions.

- Several monitoring wells were revisited and the wells were purged a second time because some analytes were inadvertently not collected during the first visit; and
- MW-10 was not sampled due to an obstruction at approximately 7 feet below the top of the casing. The well had not been sampled since 2007 and is possibly damaged at the top of the screen.

Water quality was measured during purging and sampling using an Aqua TROLL 600, which measured pH, conductivity, temperature, oxidation-reduction potential (ORP), dissolved oxygen (DO), and turbidity. The field water quality measurements recorded for the Phase IIB sampling for the Creek Corridor wells are provided in Appendix C-1 and summarized in Table 3-4a.

A rinsate blank sample was collected of deionized water passed through a decontaminated QED Environmental Systems bladder pump and non-dedicated tubing. VOC trip blanks were prepared in the field prior to groundwater sampling and maintained throughout the day along with the samples collected for VOC analysis.

Surface water samples were collected in the Creek Corridor along with the groundwater samples. Two methods were used depending on accessibility and relative safety of the location. The methods were described in Section 2.2.1. A stainless-steel Kemmerer sampler was used at locations where access was limited or too dangerous, otherwise samples were collected using the direct-fill method. Table 2-1c provides the methods used to sample each location.

2.4.2 Equipment Calibration and Maintenance

An Aqua TROLL 600 was used to measure the water quality parameters pH, conductivity, temperature, ORP, DO, and turbidity. The instrument was calibrated and maintained in accordance with the manufacturer's guidelines, with no deviations. Field calibration documentation is provided in Appendix C-4.

2.4.3 Laboratory Analysis

The Phase IIB groundwater samples from the 19 wells were analyzed for TCL VOCs, dissolved metals (arsenic and manganese only) and natural attenuation parameters including: chloride/sulfate, sulfide, alkalinity, nitrate/nitrite, dissolved gases methane, ethylene, ethane (MEE) and carbon dioxide (CO₂), organic carbon (total and soluble), volatile fatty acids (VFAs), ferrous iron, and *Dehalococcoides* (DHC). Only five of the previously sampled wells were analyzed for DHC. Five

surface water samples were collected to continue the groundwater investigation for TCL VOCs only. All samples were field-filtered for dissolved metals (arsenic and manganese only) and DOC. Due to poor purging and groundwater recovery, groundwater from MW-13 or MW-09 was not analyzed for ferrous iron, MEE, and TOC/DOC. Rinsate blank samples were analyzed for VOCs and dissolved metals (arsenic and manganese only). Trip blank samples were analyzed for VOCs.

The groundwater samples were shipped to LSASD's Regional Laboratory in Edison, New Jersey, for chloride/sulfate, sulfide, alkalinity, nitrate/nitrite, dissolved gases (MEE), and organic carbon (total and soluble). Samples for CO₂, VFAs, were shipped to Pace Analytical Energy Services LLC in Pittsburgh, Pennsylvania, and ferrous iron was shipped to Pace Analytical Services LLC in Greensburg, Pennsylvania. Samples for DHC analysis were shipped to SiREM Laboratories in Knoxville, Tennessee.

2.4.4 Creek Corridor Groundwater and Surface Water Elevation Snapshot

Groundwater and surface water elevations were measured on the same day in October 2019 during the week that followed the Phase IIB sampling event. Groundwater elevations were measured using a Solinst water level meter from the 19 wells sampled during Phase IIB and two staff gauges located along the western side of the creek (see Figure 5-1).

2.5 Sediment Toxicity and Chemistry Sampling

Contaminants that pose the greatest potential risk to benthic macroinvertebrates are total PCB Aroclors, copper, lead, and zinc. Nine locations were chosen to sample for sediment toxicity to capture a range of concentrations based on historic sediment data. The BERA designated three main zones of the Eighteen Mile Creek within OU3: downstream from Burt Dam (Reach 1); between Burt Dam and Newfane Dam (Reaches 2 through 4); and upstream from Newfane Dam (Reaches 5 through 9). The sample locations were split into three groups consistent with these zones: P1 – downstream of Burt Dam; P2 – between Burt Dam and Newfane Dam; and P3 – upstream of Newfane Dam. Each group consisted of three individual sample locations (see Figure 2-1). One background sample was collected from Oak Orchard Creek (see Figure 2-2). The sediment sample collection summary is presented in Table 2-1d.

2.5.1 Sample Collection and Methods

Surface sediment samples (0 to 0.5 feet) were collected using a stainless-steel Ponar sampler and sieved for large stones or debris. Sampling was performed in accordance with the QAPP, and as noted below:

- The sampling team did not determine the water depth to the top of sediment;

- The sampling team did not record the general sampling location coordinates using a handheld GPS unit, instead the GPS unit was used to navigate to the sampling location; and
- Location P2-SD03 was moved to a different location than what was proposed in the QAPP because sediment was not observed in the original location. The location was co-located with historical sediment sample R3-019-V.

After sample collection, bowls, spoons, trowels, and hand augers were decontaminated using Alconox, 10% nitric acid solution, and a deionized water rinse.

2.5.2 Reference Sampling

Two background locations were planned to be sampled for sediment toxicity and chemistry from Oak Orchard Creek: one location was downstream of the dam in Oak Orchard Creek, and one location was upstream of the dam.

The sample location upstream of dam in Oak Orchard Creek (BG-SD01) could not be collected because there was no sediment. Multiple alternative locations were attempted with no success. E & E's ecological risk assessor considered it acceptable that only one sample was collected as background for the BERA and, therefore, no further efforts were made to locate a suitable sampling location.

2.5.3 Laboratory Analysis

Sediment samples were analyzed for PCB Aroclors, pesticides, TAL metals, mercury, TCL SVOCs, PAHs (SIM), TOC, and grain size. Sediment samples were also analyzed for toxicity (*Hyaella Azteca/Chironomus dilutus*), bioavailability (acid volatile sulfide [AVS]/simultaneously extracted metals [SEM]), and geotechnical parameters (bulk density, Atterberg limits, porosity). The background location was not tested for geotechnical parameters because the data was primarily required to support the sediment transport modeling.

Samples were shipped via CLP laboratories to Chemtech Consulting Group in Mountainside, New Jersey, for organic and inorganic parameters and LSASD Regional Laboratory in Edison, New Jersey, for TOC and grain size. Samples collected for geotechnical parameters were shipped to Pace Analytical Services, LLC in Green Bay, Wisconsin. Samples collected for toxicity were shipped to Aquatec Environmental, Inc., in Williston, Vermont.

Sampling trip reports samples shipped to CLP laboratories are provided in Appendix C-10.

2.6 Biota Sampling

2.6.1 Soil Invertebrates

Collection of soil invertebrates was required during Phase IIA sampling efforts to support the BERA. In July 2019, co-located samples of surface soil and earthworms were collected from eight locations in the OU3 floodplain: four locations on T09E in Reach 6; three locations on T12E in Reach 7; and one

location on T10W in Reach 7 (see Figures 5-2p, 5-2r, and 5-2s). These locations were sampled previously (summer 2018) and were selected because they represent a wide range of concentrations for total PCB Aroclors and selected metals in floodplain soil.

The sample collection summary is presented in Table 2-1e. Further information regarding soil invertebrate sampling results is provided in the 2020 OU3 BERA report (E & E Forthcoming).

2.6.1.1 Sample Collection and Methods

At all locations, composite soil samples were collected from 0 to 6 inches BGS and 6 to 12 inches BGS, and a composite earthworm sample was collected from 0 to 12 inches BGS. The worms were collected using a stainless-steel hand trowel or spade to dig into the soil and the soil was hand sorted. All samples were collected in accordance with the QAPP except for the following minor deviations:

- The sample team originally began digging 2.25-square-foot plots in accordance with the Great Lakes Worm Watch (2019) procedures (see Appendix C of the QAPP); however, it became apparent that in order to collect enough worm mass for analysis, much larger plots would be required. Therefore, plot sizes ranged from 9- to 36-square-foot plots depending on how scarce worm populations were at a given location.
- Mustard solution was used twice, according to the Great Lakes Worm Watch procedures, with little to no effect. Digging larger plots was determined to be more efficient than utilizing mustard solution.

Sample weights for earthworm composite samples ranged from 15 to 101 grams (see Appendix C-6). Earthworms were allowed to depurate for approximately 24 hours after collection.

After collection, trowels and spades were decontaminated using Alconox, 10% nitric acid solution, and a deionized water rinse.

2.6.1.2 Laboratory Analysis

Soil invertebrate samples were analyzed for PCB congeners, select metals (chromium, copper, lead, nickel, selenium, and vanadium [Cr, Cu, Pb, Ni, Se, V]), and percent lipids.

The samples were shipped to Pace Analytical Services, LLC in Green Bay, Wisconsin for all parameters.

2.6.2 Emergent Aquatic Insect Sampling

In July 2019, emergent aquatic insects were collected for chemical analysis from nine locations in OU3 consistent with the BERA, which designated three main zones for the sediment toxicity samples: P1 – downstream of Burt Dam (Zone 1);

P2 – between Burt Dam and Newfane Dam (Zone 2); and P3 – upstream of Newfane Dam (Zone 3) (see Figure 2-1). The sample locations were selected to include a wide range of concentrations for total PCB Aroclors, copper, and lead, as described in the Phase II QAPP (E & E 2019c).

2.6.2.1 Sample Collection and Methods

Emergent aquatic insects were collected using light traps, malaise traps, and/or sweep nets. Trap types used at each location and emergent insect mass collected per trap are presented on Table 2-3 and in Appendix C-5. At each sampling location, the planned approach was to deploy one 6-meter malaise trap, a large tent-shaped net with collection jars at the upper corners and two light traps. However, at some locations, deployment of a malaise trap was not physically possible or traps were not as effective, so sweep nets (standard insect nets) were used to supplement the catch of the light traps. Locations that sweep nets were utilized are included in Table 2-3. The light traps and malaise traps were deployed in the morning or afternoon and allowed to collect for about 24 hours. The following morning, collection jars were retrieved and replaced, and batteries were replaced on the light traps to allow for another 24 hours of sample mass collection. Sweep nets were used opportunistically during daylight hours. Details regarding deployment and operation of the light traps and malaise traps are provided in the Phase II QAPP (E & E 2019c, see *Technical Memorandum for Emergent Aquatic Insect Sampling* at end of QAPP).

The catch of the light traps was primarily a mixture of Order Trichoptera (caddisflies) and Order Diptera (midges and some mosquitos), with little else. The catch of the malaise traps was more diverse, but generally was dominated by Order Odonata, mostly damselflies with a few dragonflies, but also included some of the same insect types as the light traps, but in lower numbers. Moths, houseflies, non-aquatic beetles (e.g., Japanese beetles [*Popillia japonica*]), and other terrestrial insects were manually removed from the catch of the Malaise traps and light traps when observed. With the sweep nets, the field crew captured only damselflies and dragonflies—almost entirely damselflies in Zone 3 (upstream of Newfane Dam) and primarily dragonflies in Zone 1 (downstream of Burt Dam).

At seven of nine sample locations, the insect biomass from the two light traps, one malaise trap, and sweep nets was combined to create a single composite sample for that location. However, in Zone 1 (downstream of Burt Dam), the insect biomass collected per trap at the two most downstream locations closest to Lake Ontario (OU3-P1-EA1 and OU3-P1-EA2) was insufficient. Hence, the insect biomass from all traps at these two locations was combined into one composite sample for analysis. In total, eight composite samples of emergent aquatic insects were collected from OU3. The samples were analyzed for PCB congeners, PAHs, selected metals, lipids, and moisture content, except for two composite samples from Zone 1, which could not be analyzed for PAHs and percent lipids. One of the composite samples could not be analyzed for moisture content due to limited sample mass (see Table 2-1e).

2.6.2.2 Laboratory Analysis

Emergent aquatic insect samples were analyzed for PCB congeners, select metals (barium, copper, lead, selenium, and vanadium, [Ba, Cu, Pb, Se, V only]), PAHs (SIM), percent lipids, and percent moisture. Emergent aquatic insect sample OU3-P1-EA01/EA02 was not analyzed for PAH or percent lipids and sample OU3-P1-EA03 was not analyzed for PAH, percent moisture, or percent lipids due to insufficient sample volume.

The samples were shipped to Pace Analytical Services LLC in Green Bay, Wisconsin, for all parameters.

2.7 Investigation-Derived Waste

One drum of wastewater (e.g., well purge water, decontamination water) was generated from Phase IIB groundwater sampling. No IDW was generated for Phase IIA. The drum of IDW was stored at the former Flintkote property until it was tested for determination of hazardous waste status and proper disposition. Only non-hazardous waste was generated from OU3 RI activities.

2.7.1 Sample Collection and Methods

One sample of the Phase IIB wastewater was collected in October 2019 for testing for hazardous waste status. Sample bottles were directly filled from the wastewater drums. The sample collection summary is presented in Table 2-1c.

2.7.2 Laboratory Analysis

For the Phase IIB composite wastewater sample, total analysis was performed for VOCs, SVOCs, PCB Aroclors, and metals. The IDW sampling results are provided in Appendix D.

The IDW samples were shipped to the LSASD Regional Laboratory in Edison, New Jersey.

2.7.3 IDW Disposition

The Phase IIB wastewater was analyzed and determined to be non-hazardous (see Appendix D-2 for analytical results). The one drum generated from Phase IIB groundwater activities was picked up and transported by Environmental Service Group, Inc., in December 2019 for disposal at American Recyclers Company in Tonawanda, New York. The waste profile reports and hazardous waste manifests are provided in Appendix D.

2.8 General Field Reporting and Documentation

Daily Phase II field activities were recorded in field logbooks in accordance with the Work Plan and QAPP. Copies of the logbooks are provided in Appendix C-9.

The field team leader completed Daily Activity Summary Reports for Phase IIA and Phase IIB activities, which were reviewed by the E & E project manager and subsequently provided to the USACE. These reports are provided in Appendix C-2.

3

Analytical Results

The following subsections present the data summary for the Phase IIA (July 2019) surface water and soil sampling event and the Phase IIB (October 2019) surface water and groundwater sampling event. These results are summarized in Tables 3-1 through 3-5. The complete results are provided in Appendix B.

3.1 Surface Water

Surface water samples were collected during four Phase IIA sampling events at six Eighteen Mile Creek locations for water quality parameters only (TSS and TDS). Surface waters were collected during two Phase IIB events at six Eighteen Mile Creek locations for chemistry parameters (PCB congeners and metals [total and dissolved]) and water quality parameters (DOC, TSS, and TDS) and four locations for water quality parameters only (TSS and TDS) only. Surface water samples were collected for the Phase IIB sampling event as part of the Creek Corridor groundwater investigation at five locations. The results for these samples are described in Section 3.4

The Phase IIB analytical results for the two high-flow surface water events are presented in Tables 3-1a (detected compounds only). The water quality analytical results for the for four Phase IIA flow monitoring events and two Phase IIB high-flow surface water events are presented in Table 3-1b.

3.1.1 Metals and Mercury

For both Phase IIB sampling events, various metals and dissolved metals were reported as detected in all samples. Mercury was not detected in any of the samples.

3.1.2 PCB Congeners

For both Phase IIB sampling events, total and dissolved PCB congeners were reported as detected in all samples. The dissolved PCB congeners results for sample OU3-R4-SW10-EV2-FF-NOV19 were not reported because the results indicate that the sample was not filtered during sampling collection. The results from the field duplicate sample OU3-R4-SW10-EV2-FF-FD-NOV19 were used in place of analytical results for the sample.

Analytical results for individual PCB congeners are provided in the analytical data tables in Appendix B.

3.1.3 Water Quality Parameters (TDS/TSS/DOC)

The Phase IIA and Phase IIB water quality results for TDS, TSS, and DOC are as shown in Table 3-1b. Field water quality parameters were also reported with the laboratory water quality parameters. Field water quality parameters for hardness were calculated from calcium and magnesium sample results. In the case calcium was non-detect and magnesium was detected, a value of “0” was used for calcium value. In the case calcium and magnesium were not detected, the quantitation limit value was used and sample result was qualified U as non-detect.

3.2 Floodplain Soil

Floodplain soil samples were collected during the Phase IIA sampling event along with soil invertebrate samples at eight existing locations (total 17 samples). Samples from one location at T12-S04 were collected for soil invertebrates but the earthworm sample from this location was not enough for analysis.

Floodplain soil samples were collected during the Phase IIA sampling event for delineation and to support the BHHRA from 26 existing locations for delineation determination (total 62 samples), and five locations at a new transect (T14) at three depths (total 16 samples).

Floodplain soil samples were collected during the Phase IIB sampling event at 57 locations (total 122 samples) and six existing locations for further delineation determination (total 13 samples). The samples were analyzed for PCB Aroclors, SVOCs and PAHs (SIM), and metals and mercury. Soil quality parameters (TOC and grain size) were analyzed for a composite sample from each transect as a representative sample for the complete transect. In the case that soil characterization differed from transect location points or intervals in a given location, an additional sample was collected for soil quality parameters.

The analytical results for floodplain soil samples are presented in Table 3-2a (detected compounds only) and 3-2b (soil quality parameters). The analytical results for floodplain soil samples associated with soil invertebrate samples are presented in Table 3-2c (detected compounds only). Analytical results for soil samples from one location at T12-S04 are presented in Appendix B-2.

3.2.1 PCB Aroclors

PCB Aroclors were detected at varying levels in approximately 60% OU3 floodplain samples.

3.2.2 Semivolatile Organic Compounds

SVOCs consisting of primarily PAH compounds were reported as detected in all OU3 floodplain samples except for four samples. Other SVOCs reported include low levels of phthalates, pentachlorophenol, and phenol.

3.2.3 Metals and Mercury

Various metals and mercury were reported as detected in all OU3 and reference area samples.

3.2.4 Soil Quality Parameters (TOC/Grain Size)

The analytical results for TOC and grain size are as shown on Tables 3-2b and 3-5a.

3.3 Industrial Soil

Industrial soil samples were re-collected during the Phase IIA sampling event at four locations (two depths sampled at two locations and one depth sampled at two locations, for a total of six samples) for delineation purposes. The samples were analyzed for PCB Aroclors, SVOCs and PAHs (SIM), metals, and mercury.

The analytical results for industrial soil samples are presented in Table 3-3 (detected compounds only).

3.3.1 PCB Aroclors

PCB Aroclors were detected in four samples, at three locations at ID06-S01, S02, and S03 (2 depths). PCB Aroclors were not detected in ID06-S05.

3.3.2 Semi-volatile Organic Compounds

SVOCs consisting of primarily PAH compounds were reported as detected in all industrial soil samples. Other SVOCs reported include low levels of phthalates and phenol.

3.3.3 Metals and Mercury

Various metals and mercury were reported as detected in all industrial soil samples.

3.4 Groundwater

Groundwater samples were collected during the Phase IIB sampling event at 19 wells. Eight samples (existing wells) not analyzed during Phase IB sampling efforts were sampled for VOCs and natural attenuation parameters. No sample was collected from MW-10 due to an obstruction in the well. Eleven samples from four wells installed during Phase I (MW-20 through MW-23) and seven existing wells were sampled and analyzed for VOCs and natural attenuation parameters (chloride/sulfate, sulfide, alkalinity, nitrate/nitrite, dissolved gases [MEE]) and CO₂, organic carbon (total and soluble), VFAs, and ferrous iron. Genetic testing for DHC was conducted at five of the wells (MW-05, MW-14, MW-15, MW-20, and MW-23). The sample from MW-13 was not analyzed for TOC/DOC, ferrous iron, or dissolved gases (MEE) due to restricted sample volume. The sample from MW-09 was not analyzed for TOC/DOC or ferrous iron due to restricted sample volume. Surface water samples were collected for Phase IIB sampling event as part of the Creek Corridor groundwater investigation at five locations. Surface water samples were analyzed for VOCs.

The analytical results for groundwater and associated surface water samples are presented in Tables 3-4a (detected VOCs compounds and natural attenuation parameters).

3.4.1 Volatile Organic Compounds

VOCs, including cis-1,2-dichloroethylene, tetrachloroethene (PCE), and trichloroethylene (TCE) were detected at varied concentrations in five of the existing wells sampled in 2018. These five existing wells and noted VOC concentrations in 2019 are as follows: MW05: 8.4 µg/L (cis-1,2-dichloroethylene); MW14: 2.2 µg/L (PCE), 9.2 µg/L (cis-1,2-dichloroethylene) and 11 µg/L (TCE); MW15: 0.57 µg/L (TCE); MW20: 14 µg/L (cis-1,2-dichloroethylene); and MW23: 2.1 µg/L (cis-1,2-dichloroethylene). MW-19 continued to exhibit high levels of acetone (970 µg/L) indicating a potential issue with this well. VOCs exhibited minor detection or no detections for existing wells not sampled in 2018 (see Section 5.4). Surface water samples were collected in the Creek Corridor along with the groundwater samples. No VOCs were detected in the Creek Corridor surface water samples.

3.4.2 Natural Attenuation Parameters (Chloride/Sulfate, Sulfide, Alkalinity, Nitrate/Nitrite, Dissolved Gases [MEE], and Organic Carbon [Total and Soluble])

Various analytes were detected in all groundwater samples. There were no detections for the dissolved gas analyte ethene.

3.4.3 Natural Attenuation Parameters (CO₂, VFA, and Ferrous Iron)

Various analytes were reported as detected in all groundwater samples. Volatile fatty acids 4-methylpentanoic acid, pentanoic acid, or pyruvic acid were not detected in any groundwater samples.

3.4.4 Natural Attenuation Parameters (DHC)

All gene testing results were not detected for DHC.

3.4.5 Natural Attenuation Parameters Dissolved Metals (Arsenic and Manganese Only)

Dissolved arsenic and manganese were detected in most of the groundwater samples.

3.5 Sediment

Sediment samples were collected during the Phase IIA sampling event at nine locations (a composite and underlying grab sample at each location equals 18 samples), and one out of two reference field locations. One reference location was unable to be collected because there was little access to sediment. Sediment samples were analyzed for chemistry (PCB Aroclors, SVOCs, pesticides, metals, and mercury), toxicity (*Hyalella azteca* [amphipod] *Chironomus dilutus* [midge]), bio-availability (AVS/SEM), sediment geotechnical parameters (percent moisture, bulk density, Atterberg limits) and sediment quality parameters (TOC/grain size). Sediment geotechnical parameter analysis of bulk density and Atterberg limits was not required from the reference field locations.

The analytical results for sediment samples for chemistry and geotechnical parameters are presented in Table 3-5a (detected compounds only). The analytical results for sediment samples for toxicity testing are presented in Tables 3-5b and 3-5c.

3.5.1 PCB Aroclors

PCB Aroclors were detected in six of the samples collected in Zones 2 and 3. PCB Aroclors were not detected in the sediment samples collected in Zone 1 and the reference field sample.

3.5.2 Semivolatile Organic Compounds

SVOCs consisting of primarily PAH compounds were detected in eight of the nine samples collected. PAHs were not present in sample OU3-P1-SD02-JUL19 or the reference field sample. Other SVOCs reported include low levels of phthalates and phenol.

3.5.3 Pesticides

Pesticides were sporadically detected in samples from six locations. Pesticides were not detected in two of the three Zone 2 and Zone 3 locations or the reference field sample.

3.5.4 Metals and Mercury

Various metals and mercury were reported as detected in all sediment samples.

3.5.5 Toxicity (*Chironomus dilutus* [midge] and *Hyalella azteca* [amphipod])

Toxicity results are presented in detail in Appendix F of the BERA (E & E Forthcoming). The following results are noteworthy for the *Chironomus* test:

- Twenty-day survival was significantly reduced at six of nine sample locations compared with the laboratory control or reference location (see Table 3-5b). Specifically, compared with the reference sample, 20-day survival was significantly reduced in samples from four locations in Zones 2 and 3: OU3-P2-SD02 (0% survival), OU3-P3-SD01 (8.3% survival), OU3-P2-SD01 (14.6% survival), and OU3-P3-SD03 (35.4% survival). Notably, the bioassay laboratory reported a hydrocarbon odor in samples from two of these locations, OU3-P2-SD01 and OU3-P2-SD02, and indicated that sediment texture in sample OU3-P3-SD01 was uncharacteristically coarse compared with sediment from other locations that were tested.
- Life cycle survival and percent emergence were significantly reduced at seven of nine sample locations in Eighteen Mile Creek OU3, similar to the results for 20-day survival (see Table 3-5b). The four samples from Zones 2 and 3 that showed the greatest reduction in 20-day survival also showed the greatest reduction in life cycle survival and percent emergence.
- Female and male life cycle and reproduction endpoints, including days to emerge, days alive after emergence, egg production, and egg hatching success,

appeared to be less sensitive endpoints compared with 20-day survival, life cycle survival, and percent emergence (see Table 3-5b). For these endpoints, few samples showed significant differences from the laboratory control or reference sample.

The following results are notable for the *Hyaella* test:

- Survival at day 28 was significantly reduced for four of nine sample locations compared with the laboratory control or reference location (see Table 3-5c). Survival was a progressively less sensitive endpoint for longer exposure durations, with only two sample locations differing from the laboratory control or reference sample at day 35, and only one sample location differing from the laboratory control or reference sample at day 42. This phenomenon appears to be related to a gradual (but acceptable) reduction in survival in the laboratory control (96% to 86%) and reference sample (95% to 88%) between days 28 and 42. The minimum acceptable control survival for test results to be valid is 80%.
- Compared to the reference sample location, survival was significantly reduced in Zones 2 and 3 at sample locations OU3-P2-SD02 (0.8 to 1.3% survival for days 28 to 42), OU3-P2-SD01 (85% survival at day 28), OU3-P3-SD01 (91.7% survival at day 28), and OU3-P3-SD03 (89.2 and 87.5% survival at days 28 and 35, respectively; see Table 3-5c). As for *Chironomus*, *Hyaella* survival was most reduced for sample OU3-P2-SD02.
- Significant reductions in biomass at days 28 or 42 (compared to the reference location) generally corresponded with sample locations that demonstrated significantly reduced survival (see Table 3-5c).
- Seven of nine sample locations had significantly lower reproduction (number of young produced per female) compared to the reference location (see Table 3-5c). Hence, reproduction appeared to be the most sensitive test endpoint for this species.

3.5.6 AVS/SEM and Geotechnical Parameters (Grain Size, TOC, Percent Moisture, Bulk Density, Atterberg Limits)

The analytical results are as shown on Table 3-5a. The sediment samples submitted for toxicity testing were typically fine-grained (i.e., silty with some clay, fine sand, and very fine sand), except for one sample from Zone 3 (OU3-P3-SD01) that was composed of 50% gravel (see Table 3-5a). The ratio of SEM to AVS in the OU3 samples was less than 1, except for one sample from Zone 3 (OU3-P3-SD02) with a ratio of 3.2 (see Table 3-5a). AVS/SEM theory posits that divalent metals (cadmium, copper, lead, mercury, nickel, and zinc) and other metals that form complexes with sulfide (antimony, arsenic, chromium, and silver) are unlikely to be bioavailable and toxic to benthic organisms when the ratio of SEM to AVS is less than 1 (Allen et al. 1993).

Bulk density and Atterberg limits were consistent in all samples and the results will be evaluated as part of the sediment transport modeling.

3.6 Biota

Biota samples were collected for the Phase IIA sampling event at eight soil invertebrate sampling locations that coincided with floodplain soil collection and at nine emergent aquatic insect sampling locations coinciding with sediment sample collection. The soil invertebrates were analyzed for chemistry parameters (PCB congeners and metals barium, chromium, copper, lead, nickel, selenium, vanadium [Ba, Cr, Cu, Pb, Ni, Se, V only] and percent lipids). The emergent aquatic insects were analyzed for chemistry parameters (PCB congeners, PAH, and metals [Ba, Cu, Pb, Se, V only] percent lipids, and percent moisture). Samples OU3-P1-EA01 and OU3-P1-EA02 were combined to provide sufficient sample volume for analysis. PAHs, and percent lipids were unable to be determined due to insufficient volume in sample composition for combined samples OU3-P1-EA01/EA02-JUL19. PAHs, percent lipids, and percent moisture were unable to be determined due to insufficient volume in sample composition for OU3-P1-EA03-JUL19.

The Phase IIA analytical results for the soil invertebrate samples are presented in Table 3-6a (detected compounds only), and Table 3-6b for the emergent aquatic insects (detected compounds only). The biota results are evaluated relative to soil and sediment concentrations in Appendices G and H of the BERA (E & E Forthcoming).

3.6.1 Semivolatile Organic Compounds (PAHs)

PAHs compounds were detected at low levels in all emergent aquatic insect samples tested.

3.6.2 Metals

Select metals were detected in all samples for soil invertebrate and emergent aquatic insects except for vanadium. Vanadium was only detected at low levels in one emergent aquatic insect sample OU3-P3-EA03-JUL19.

3.6.3 PCB Congeners

Total PCB congeners were detected in all samples for soil invertebrate and emergent aquatic insects. Total PCB congeners detected in the soil invertebrates are all greater than 1 part per million (ppm) except for OU3-R6-T09E-S04-EW.

Analytical results for individual PCB congeners are provided in analytical data Tables B-6 and B-7 in Appendix B.

4

Quality Control Summary

The following subsections present a QC summary of the data collected by E & E as part of Phase II field activities. Samples were collected in the field according to the OU3 RI Work Plan and OU3 QAPP (E & E 2018a, b) and the OU3 QAPP updated for Phase IIb (E & E 2019c). In accordance with CLP Guidance for Field Samplers, field collection information was managed using Scribe[®] software and samples were shipped to various laboratories as detailed in Section 2 (EPA 2014).

All data validation was performed in accordance with the requirements outlined in the QAPP. Table 2-1 provides a listing of the sample delivery group (SDG) and associated samples and methods for Phase IIA. Table 2-1 provides a listing of the SDG and associated samples and methods for Phase IIB. CLP data assessments performed by the USEPA are provided in Appendix A-1 for Phase IIA and Appendix A-2 for Phase IIB. E & E's assessment of the groundwater ferrous iron, VFA, and CO₂ data, as well as, data for biota analyses subcontracted for Phase IIA and IIB is provided in Appendix A-3 and associated data packages are provided in Appendix F-1. LSASD does not prepare a separate data assessment report, but the evaluation of the data is included in the laboratory report provided in Appendix F-2.

For all Phase II data, a summary of the qualifiers, overall completeness and usability of the data is presented in Section 4.12. Data management processes in support of the DER are described in Section 4.13.

4.1 Quality Assurance/Quality Control (QA/QC) Samples

The following subsections present an evaluation of the field blanks and field duplicates collected for water and soil quality assurance/quality control (QA/QC).

CLP data assessments include an evaluation of the field blanks and field duplicates based on the information provided in the trip reports (see Appendix C-10). The field duplicate and blank sample results submitted through LSASD were reviewed by the E & E Project Chemist and further validation is presented in the validation memo (see Appendix A-4).

4.1.1 Field Blanks

A rinsate blank is analyte-free water collected from decontaminated field sampling equipment to identify the adequacy of the decontamination process and to identify any cross contamination. A trip blank is analyte-free water prepared in

the field for VOC analysis only to ensure no cross contamination during shipment. Field blanks were collected at the planned frequency. Analyte-free water was obtained from Environmental Sampling Supply that included a Pre-Cleaned Certified Certificate of Compliance, stating it was chemically cleaned using specified EPA cleaning procedures for low-level chemical analysis.

If the analyte was detected greater than or equal to the method detection limit (MDL), but less than or equal to the contract required quantitation limit (CRQL), and the associated sample results were detected greater than or equal to the MDL, but less than or equal to the CRQL, then the sample result was qualified “U” as non-detect and the result was reported at the CRQL. No qualification was required for results that were non-detect.

If the analyte was detected, and the sample result was detected less than five times the blank detection, then the sample result was qualified “U” as non-detect and the result was reported at the CRQL. No qualification was required for results that were non-detect.

4.1.1.1 Phase IIA Sampling Event

Surface water

Water quality parameters were sampled throughout the Phase IIA event. No field blanks were required.

Soil

Three rinsate blanks were collected on trowel, hand auger, and split spoon. Two of the three rinsate blanks were analyzed by the laboratory. One rinsate sample collected on trowel was received at laboratory outside of the temperature and hold time. Sample was requested to not be analyzed and was re-sampled as part of the Phase IIB event. The associated samples are presented in Table 2-1b; rinsate blank results are presented in Table 4-2b. There were no positive detections for SVOCs/SVOC-PAH, or PCB Aroclors in the rinsate blanks. Complete rinsate blank results are presented in Appendix B, Table B-9.

Metals: Iron was detected in rinsate blank sample OU3-RB03-18JUL19. The associated samples were qualified as described above.

Sediment

No field blanks were required as dedicated equipment was used.

Biota

No field blanks were required as dedicated equipment was used.

4.1.1.2 Phase IIB Sampling Event

Surface Water – Event 1 (EV1 October 2, 2020)

One rinsate blank was collected for total portion and one rinsate blank was collected for dissolved portions. The associated sample results are presented in Table 2-1a, results for detected compounds in the rinsate are presented in Table 4-1b, and complete rinsate results are presented in Appendix B, Table B-8.

Metals: Aluminum, calcium, sodium, and zinc were detected greater than the CRQL in field rinsate blank OU3-RB06-03OCT2019 associated with total portion results. Three sample results for aluminum and zinc, as well as two sample results for sodium were “U” qualified as non-detect at the reported sample concentration, elevating the CRQL to sample result.

PCB Congeners: Analytes were commonly detected at less than one half the CRQL in the associated rinsate blanks. When analytes were detected greater than or equal to one half the CRQL and the associated sample results were less than the blank detection, sample results were reported as non-detect at the blank result value. In instances where analytes were detected greater than or equal to one half the CRQL and the associated sample results less than the CRQL, but greater than blank detection, the sample result was reported non-detect at the CRQL. The associated analytes were qualified as described above. The associated samples for rinsate blank detections are presented in Table 2-1a. A total of 224 sample results for individual congeners were qualified “U” as non-detect based on the rinsate blanks (see Appendix B, Table B-8 for complete results). There were 110 instances where sample results for individual congeners (total and dissolved) were reported at the blank detection value. There were 114 (total and dissolved) instances where sample results for individual congeners were reported at the CRQL value. The qualification of individual PCB congeners does not have a significant impact on the total PCB congener concentrations because the CRQL values are very low.

Water Quality: DOC was detected in rinsate blank OU3-RB04-03OCT2019. Three samples were qualified “U” as non-detect based on the rinsate blank detection.

Surface Water – Event 2 (EV2 November 1, 2020)

One rinsate blank was collected for dissolved metals and PCB congeners portion. The rinsate blank for total metals and PCB congeners was not collected. The associated samples are presented in Table 2-1a, results for detected compounds in the rinsate are presented in Table 4-1b. There were no positive detections for dissolved PCB congeners in the rinsate blank. Complete results are shown in Appendix B, Table B-8.

Metals: Magnesium, barium, manganese, calcium, copper, iron, potassium, zinc, nickel, and sodium were detected greater than the CRQL in field rinsate blank

OU3-RB05-01NOV2019. Five sample results for barium, calcium, copper, magnesium, manganese, potassium, and sodium, four sample results for iron and nickel, and six results for zinc were “U” qualified as non-detect at the reported sample concentration elevating the CRQL sample result.

Soil

One rinsate blank was collected on trowels. Because the rinsate blank for the trowel equipment in Phase IIA was not analyzed, this rinsate blank is representative of all hand troweling samples. There were no positive detections for SVOCs or dissolved metals in the rinsate blank. The associated samples are presented in Table 2-1b, rinsate blank results are presented in Table 4-2b and Appendix B, Table B-9.

Groundwater

One rinsate blank and six trip blanks were collected. There were no positive detections for VOCs, dissolved metals, or dissolved gases as shown on Table 4-3b and Appendix B, Table B-10, in the associated rinsate and trip blank results.

4.1.2 Field Duplicates

Field duplicates provide information regarding the reproducibility of analytical results and account for error introduced from handling, shipping, preparing, and analyzing field samples. Field duplicates were collected in the field at a rate of 5%.

For organic analyses, VOCs, PCB Aroclors, and SVOCs and PAH (SIM), the field duplicates were considered acceptable if each analyte with a detection greater than five times the CRQL exhibited a relative percent difference (RPD) less than or equal to 50% for both aqueous and solid samples. For PCB congener analysis, the aqueous and solid matrices must exhibit an RPD less than or equal to 40% to be considered acceptable. For metals and mercury analysis, the field duplicates were considered acceptable if each analyte with a detection greater than five times the CRQL exhibited an RPD less than or equal to 20% for aqueous samples and less than or equal to 40% for solid samples. In all instances, if the RPD was greater than the acceptance criteria, the analytes were qualified “J” as estimated in the field duplicate samples.

Overall, the field duplicates show good precision and did not indicate any concerns with sampling methodology or design.

4.1.2.1 Phase IIA Sampling Event

Surface Water

Water quality parameters were sampled throughout the Phase IIA event. No field duplicates were collected.

Soil

Six field duplicates were collected at the planned frequency. The field duplicate results are presented in Table 4-2a for all detected analytes and Appendix B, Table B-2, for complete results.

SVOCs/SVOC-PAH (SIM): Naphthalene, 2-methylnaphthalene, benzo(a)anthracene and chrysene were qualified “J” as estimated in the field duplicate of OU3-R8-ID06E2-S05-Z2. Benzo(a)anthracene and phenanthrene were qualified “J” as estimated in the field duplicate of OU3-R6-T08E-S07-Z2. Bis (2-ethylexyl) phthalate, acenaphthylene, and anthracene were qualified “J” as estimated in the field duplicate of OU3-R7-T12E-S03-EW-Z1.

PCB Aroclors: Aroclor-1254 and Aroclor-1260 were qualified “J” as estimated in the field duplicate of OU3-R7-T12E-S03-EW-Z1.

Metals: Antimony, cadmium, chromium, cobalt, copper, lead, nickel, silver, vanadium, and zinc were qualified “J” as estimated in the field duplicate of OU3-R7-T12E-S03-EW-Z1. Manganese was qualified “J” as estimated in the field duplicate of OU3-R8-ID07E-S01-Z2. Zinc was qualified “J” as estimated in the field duplicate of OU3-R1-T01E-S02-Z1.

Sediment

One field duplicate was collected at the planned frequency. The field duplicate results are presented in Table 4-4 for all analytes and Appendix B, Table B-5, for complete analytical results.

The precision between all analytes for SVOCs, PCB Aroclors, and metals analyses were within acceptance criteria.

Pesticides: 4,4-DDD was qualified “J” as estimated in the parent sample of field duplicate of OU3-P2-SD02-JUL19 and qualified “UJ” as estimated non-detect in the field duplicate of OU3-P2-SD02-JUL19.

Biota

No field duplicates were collected due to insufficient sample volume throughout the Phase IIA sampling event.

4.1.2.2 Phase IIB Sampling Event**Surface Water – EV1**

One field duplicate pair was collected per event at the planned frequency. One field duplicate pair associated with OU3-R7-T17W-S04-Z1 was not scheduled for SVOC/SVOC-PAH (SIM) analysis; therefore, the duplicate was unable to be evaluated. The field duplicate pair associations are presented in Table 2-1a. The field duplicate results are presented in Table 4-1a and complete analytical results are presented in Appendix B, Table B-1.

The precision between all analytes for metals analyses in the field duplicates were within acceptance criteria.

PCB Congeners: PCB-56/60 were qualified “J” as estimated in the field duplicate pair of OU3-R7-SW21-EV1-OCT19.

Surface Water – EV2

One field duplicate pair was collected per event at the planned frequency. The field duplicate pair associations are presented in Table 2-1a. The field duplicate results are presented in Table 4-1a and complete analytical results are presented in Appendix B, Table B-1.

The precision between all analytes for metals analyses in the field duplicates were within acceptance criteria.

PCB Congeners: PCB-39 and PCB-195 were qualified “J” as estimated in the field duplicate of OU3-R4-SW10-EV2-NOV19. PCB-55 was qualified “J” as estimated in the parent sample of field duplicate of OU3-P2-SD02-JUL19 and qualified “UJ” as estimated non-detect in the field duplicate of OU3-R4-SW10-EV2-NOV19.

The precision between most analytes in the field duplicate pair of OU3-R4-SW10-EV2-FF-NOV19 were outside of the acceptance criteria. The parent sample OU3-R4-SW10-EV2-FF-NOV19 exhibited elevated results, indicating that the sample was not filtered in the field. The parent sample results were marked as non-reportable and duplicate sample results will be used as field filtered results for PCB congeners for sample OU3-R4-SW10-EV2-FF-NOV19. Field duplicate precision was not evaluated.

Soil

Six field duplicates were collected at the planned frequency. The field duplicate results are presented in Table 4-2a for all detected analytes and Appendix B, Table B-2, for complete results.

SVOCs/SVOC-PAH (SIM): Bis (2-ethylexyl) phthalate was qualified “J” as estimated in the field duplicate of OU3-R7-T23E-S03-Z2 and OU3-R7-T19W-S01-Z2. Dimethyl phthalate was qualified “J” as estimated in the field duplicate of OU3-R7-T19W-S01-Z2 and OU3-R7-T15E-S02-Z2. Pyrene was qualified “J” as estimated in the field duplicate of OU3-R7-T21E-S02-Z2.

Groundwater

The field duplicate results are presented in Table 4-3a for all detected analytes and Appendix B, Table B-4, for complete results.

No VOCs, PCB Aroclors, and metals were detected in the rinsate. The only detected in the field duplicates were natural attenuation parameters and the precision was acceptable except for VFAs.

VFAs: Acetic acid and 2-hydroxypropanoic acid exhibited poor sample pair precision for OU2-MW16-OCT19, exhibiting detection in one sample, but not the other. The sample results were J/UJ qualified as estimated values.

4.2 Data Review

Validation of data submitted to the assigned CLP laboratories was performed by EPA Region 2 Hazardous Waste Support Branch/Hazardous Waste and Superfund Staff (HWSB/HWSS). Data generated by E & E subcontracted laboratories were validated by the E & E Project Chemist. Data generated by the EPA Region 2 LSASD laboratory was reviewed by LSASD personnel prior to release. The following sections summarize the findings presented in these data assessments.

The data review included an evaluation of the following:

- Sample receipt at the laboratory;
- Holding times;
- Tuning and calibration;
- Reporting limits and dilutions/re-analyses;
- Laboratory blanks;
- Laboratory control samples;
- Matrix spike/matrix spike duplicate (MS/MSD) samples;
- Sample result verification; and
- Method-specific QC samples.

4.3 Sample Receipt at the Laboratory

4.3.1 Phase IIA Sampling Event

Surface Water

All sample procedures were followed and the sample coolers were received at the appropriate temperature ($4 \pm 2^{\circ}\text{C}$) and in good condition.

Soil

All sample procedures were followed and the sample coolers were received at the appropriate temperature ($4 \pm 2^{\circ}\text{C}$) and in good condition except as noted below.

Rinse blank sample OU3-RB01-16JUL19 was received at the laboratory at elevated temperature of 25.2°C . The laboratory was instructed by E & E not to proceed with analysis.

Metals and Mercury: Samples OU3-R7-T12E-S05-Z1, OU3-R7-T12E-S05-Z2, OU3-R6-T06E-S05-Z, OU3-R5-T05E-S05-Z1, OU3-R5-T05E-S05-Z2, OU3-R5-

T05E-S06-Z1, OU3-R5-T05E-S06-Z2, OU3-R5-T05E-S07-Z1, OU3-R5-T05E-S07-Z2, OU3-R5-T05E-S08-Z1, OU3-R5-T05E-S08-Z2, OU3-R6-T08E-S08-Z1, OU3-R6-T08E-S08-Z2, OU3-R7-T12E-S02-EW-Z1, OU3-R7-T14E-S03-Z1, OU3-R7-T14E-S04-Z1, OU3-R7-T14E-S03-Z2, OU3-R7-T11W-S09-Z3, and OU3-R7-T14E-S04-Z2 exhibited percent solids below 50% and all detected values were qualified “J” as estimated and all non-detected values were qualified “UJ” as estimated non-detect.

Sediment

All sample procedures were followed and the sample coolers were received at the appropriate temperature ($4 \pm 2^{\circ}\text{C}$) and in good condition except as noted in the following paragraphs.

Metals and Mercury: All sediment samples exhibited percent solids below 50% and all detected values were qualified “J” as estimated and all non-detected values were qualified “UJ” as estimated non-detect.

SVOCs: Samples OU3-P2-SD01-JUL19, OU3-P2-SD03-JUL19, OU3-P3-SD01-JUL19, and OU3-P3-SD03-JUL19 exhibited percent solids below 30% but greater than 10%. All detected values were qualified “J” as estimated and all non-detected values were qualified “UJ” as estimated non-detect.

PCB Aroclors: Samples OU3-P2-SD01-JUL19, OU3-P2-SD03-JUL19, OU3-P3-SD01-JUL19, and OU3-P3-SD03-JUL19 exhibited percent solids below 30% but greater than 10%. All detected values were qualified “J” as estimated and all non-detected values were qualified “UJ” as estimated non-detect.

Pesticides: Samples OU3-P2-SD01-JUL19, OU3-P2-SD03-JUL19, OU3-P3-SD01-JUL19, and OU3-P3-SD03-JUL19 exhibited percent solids below 30% but greater than 10%. All detected values were qualified “J” as estimated and all non-detected values were qualified “UJ” as estimated non-detect.

Biota

All sample procedures were followed and the sample coolers were received at the appropriate temperature ($4 \pm 2^{\circ}\text{C}$), in good condition, and frozen upon arrival.

4.3.2 Phase IIB Sampling Event**Surface Water**

All sample procedures were followed and the sample coolers were received at the appropriate temperature ($4 \pm 2^{\circ}\text{C}$) and in good condition.

Soil

All sample procedures were followed and the sample coolers were received at the appropriate temperature ($4 \pm 2^{\circ}\text{C}$) and in good condition except as noted in the following paragraphs.

Metals and Mercury: Samples OU3-R7-T12E-S13-Z1, OU3-R7-T12E-S13-Z2, and OU3-R7-T12E-S14-Z1 exhibited percent solids below 50% and all detected values were qualified “J” as estimated. All non-detected values were qualified “UJ” as estimated non-detect.

SVOCs: Sample OU3-R7-T12E-S13-Z1 exhibited percent solid below 30% but greater than 10%, all detected values were qualified “J” as estimated, and all non-detected values were qualified “UJ” as estimated non-detect.

PCB Aroclors: Sample OU3-R7-T12E-S13-Z1 exhibited percent solid below 30% but greater than 10%, all detected values were qualified “J” as estimated, and all non-detected values were qualified “UJ” as estimated non-detect.

Groundwater

All sample procedures were followed and the sample coolers were received at the appropriate temperature ($4 \pm 2^{\circ}\text{C}$) and in good condition.

4.4 Holding Times

The amount of analyte in a sample can change with time due to chemical instability degradation, volatilization, etc. If the specified holding time is exceeded, the data may not be valid.

4.4.1 Phase IIA Sampling Event**Surface Water**

All samples were analyzed within the technical holding times.

Soil

All samples were analyzed within the technical holding times except as noted below.

Rinse blank sample OU3-RB01-16JUL19 was received at the laboratory outside of acceptable hold time for SVOCs and PCB Aroclors. The laboratory was instructed by E & E not to proceed with analysis.

Sediment

All samples were analyzed within the technical holding times.

Biota

All samples were analyzed within the technical holding times.

4.4.2 Phase IIB Sampling Event**Surface Water**

All samples were analyzed within the technical holding times.

Soil

All samples were analyzed within the technical holding times.

Groundwater

All samples were analyzed within the technical holding times except as noted below.

Ferrous Iron: All samples for ferrous iron were analyzed outside of the recommended 24-hour hold time. The samples results were qualified as estimated values.

VFAs: Samples OU2-MW15-SEP19, OU2-MW20-SEP19, and OU2-MW23-SEP19 were analyzed outside of the 14-day hold time for VFAs. The sample results were “UJ/J” qualified as estimated value.

4.5 Tuning and Calibration

Tuning and performance criteria are established to ensure adequate mass resolution, proper identification of compounds, and to some degree, sufficient instrument sensitivity. These criteria are not sample specific. Instrument performance is determined using standard materials; therefore, these criteria should be met in all circumstances.

If the analyte was detected in the associated samples, the analyte was qualified “J” as estimated, and if the analyte was not detected in the associated samples, the analyte was qualified “UJ” as estimated non-detect.

4.5.1 Phase IIA Sampling Event**Surface water**

LSASD does not provide calibration QC data.

Soil

Calibration procedures met the frequency and acceptance criteria for all analyses except as noted below.

SVOCs: Fluoranthene exhibited a percent relative standard deviation (%RSD) in the initial calibration and a percent difference (%D) in the initial calibration verification outside of the acceptance criteria. There were 27 instances where positive detected results were qualified “J” as estimated. There was a total of 56 instances where non-detected results were qualified “UJ” as estimated non-detect due to 2-nitroaniline, 3-nitroaniline, hexachloroethane, 2,4,6-trichlorophenol, 4,6-dinitro-2-methylphenol and 1,2,4,5-tetrachlorobenzene %RSD outside of the acceptance criteria.

Sediment

Calibration procedures met the frequency and acceptance criteria for all SVOCs and metal analyses.

Biota

Calibration procedures met the frequency and acceptance criteria for all SVOCs and metal analyses.

4.5.2 Phase IIB Sampling Event**Surface Water**

LSASD did not provide calibration QC data.

Soil

Calibration procedures met the frequency and acceptance criteria for all analyses except as noted below.

SVOCs: There was one instance where 2-nitrophenol and butyl benzyl phthalate exhibited a %D in the opening or closing continuing calibration verification (CCV). The associated analytes were qualified as described above.

Groundwater

LSASD did not provide any calibration QC data.

4.6 Reporting Limits and Dilutions and Reanalysis**4.6.1 Phase IIA Sampling Event****Soil**

Several analyses were performed at a dilution due to high levels of the analyte in the sample matrix. Sample OU3-R8-ID06E2-S05-Z1 was diluted at 100X dilution for copper. All associated samples results were detected; therefore, no data usability issues were observed.

There was one instance in which the parent sample was greater than 50 times the MDL and serial dilution recovered outside of the %D for cadmium. The parent sample results were qualified “J” as an estimated value.

Mercury: Multiple samples were diluted at 2X, 4X, and 5X concentrations. All associated samples results were detected; therefore, no data usability issues were observed.

Sediment

SVOCs/SVOC-PAH (SIM): Sample OU3-P2-SD-FD-JUL19 was diluted at 5X concentration for multiple analytes. Sample OU3-P3-SD02-JUL19 was diluted at 2X concentration for pyrene. All associated samples results were detected; therefore, no data usability issues were observed.

PCB Aroclors: Sample OU3-P3-SD02-JUL19 was diluted at 10X concentration for Aroclor-1242 and Aroclor-1254. All associated samples results were detected; therefore, no data usability issues were observed.

Metals: Sample OU3-P2-SD-FD-JUL19 and OU3-P2-SD02-JUL19 were diluted at a 10X concentration for lead and zinc. Multiple samples were diluted at a 2X concentration. All associated samples results were detected; therefore, no data usability issues were observed.

Pesticides: No dilution or reanalysis was performed and no reporting limit issues were reported or observed.

Biota

No dilution or reanalysis was performed and no reporting limit issues reported or observed.

4.6.2 Phase IIB Sampling Event**Surface Water**

Water Quality: Samples OU3-R4-SW10-EV1-OCT19, OU3-R6-SW14-EV1-OCT19, OU3-R7-SW18-EV1-OCT19, OU3-R6-SW15-EV1-OCT19, OU3-R7-SW20-EV1-OCT19, and OU3-EB-SW16-EV1-OCT19 have very high presence of suspended material, thus, it is impossible to filter the entire 1,000 mL sample for TSS analysis. Analysis was performed using 800 mL for sample OU3-R7-SW20-EV1-OCT19; 600 mL for sample OU3-R6-SW14-EV1-OCT19; 500 mL for samples OU3-R6-SW14-EV1-OCT19, OU3-R7-SW18-EV1-OCT19, and OU3-R6-SW15-EV1-OCT19; and 250 mL for sample OU3-EB-SW16-EV1-OCT19. The reporting limit was raised accordingly.

Soil

SVOCs/SVOC-PAH (SIM): Multiple samples were diluted at 2X, 5X, and 10X concentrations. All associated samples results were detected; therefore, no data usability issues were observed.

PCB Aroclors: Multiple samples were diluted at 2X, 5X, 10X, 20X, 40X, and 50X concentrations. All associated samples results were detected; therefore, no data usability issues were observed.

Metals: Multiple samples were diluted at 2X, 4X, 5X, and 10X concentrations. All associated samples results were detected; therefore, no data usability issues were observed.

There were multiple instances in which parent sample was greater than 50 times the MDL and serial dilution recovered outside of the %D for arsenic, cadmium, barium, silver, and zinc. The parent sample results were qualified “J” as an estimated value.

Mercury: Multiple samples were diluted at 2X, 3X, and 5X concentrations. All associated samples results were detected; therefore, no data usability issues were observed.

Groundwater

VOCs: Sample OU2-MW19-OCT19 was re-analyzed and diluted at a 25X concentration for acetone. The sample result was detected; therefore, no data usability issues were observed.

The reporting level of 5 µg/L was raised to 10 µg/L for 2,4-dinitrophenol, benzo(g,h,i)perylene, and indeno(1,2,3-cd)pyrene. The reporting level of 5 µg/L was raised to 30 µg/L for dibenzo(a,h)anthracene and di-n-octyl phthalate. The reporting level of 0.50 µg/L was raised to 1 µg/L for bromomethane, chloromethane, and vinyl chloride.

Chloride/Sulfate: Multiple samples were diluted at 10X, 20X, and 50X, concentrations. All associated samples results were detected; therefore, no data usability issues were observed.

Nitrate [as Nitrogen (N)]: Multiple samples were diluted at 5X and 10X concentrations. All associated samples results were detected; therefore, no data usability issues were observed.

The reporting level of 0.03 mg/L was raised to 0.05 mg/L for nitrate [as N], nitrite [as N] for multiple samples.

MEE: Methane was re-analyzed and diluted at 20X, 40X, and 100X concentrations. All associated samples results were detected; therefore, no data usability issues were observed. Multiple samples were re-analyzed, no data usability issues were observed.

VFAs: Multiple samples were re-extracted and re-analyzed outside of hold time for formic acid because the laboratory control sample (LCS) and MSD were out of the control limit. The sample results were qualified “J” and “UJ” as estimated values.

Metals: The reporting level of 100 µg/L was raised to 200 µg/L for sodium in rinse blank sample OU3-RB01-01OCT19.

4.7 Laboratory Blanks

A laboratory method blank is an analyte-free matrix that is carried through the entire preparation and analysis sequence to identify potential contamination introduced during preparation and analysis. Calibration blanks are a blank solution containing all of the reagents and in the same concentration as those used in the analytical sample preparation and are not subjected to the preparation method. The initial calibration blank is analyzed in the beginning of an analytical run, and the continuing calibration blanks are analyzed throughout an analytical run in association with the initial and CCV checks.

4.7.1 Phase IIA Sampling Event

Surface Water

All laboratory method blanks were analyte-free and no data usability issues were observed.

Soil

Metals and Mercury: Antimony, beryllium, cadmium, silver, thallium, and mercury were detected in multiple laboratory blank samples (continuing calibration blanks). The associated samples were qualified as described above.

Sediment

Metals and Mercury: Antimony, beryllium, cadmium, silver, thallium, selenium and mercury were detected in multiple laboratory blank samples (continuing calibration blanks). The associated samples were qualified as described above.

Biota

All laboratory method blanks were analyte-free and except as noted below.

SVOCs SIM: Minor detections were found in method blank for benzo(a)pyrene and phenanthrene. No qualifications were made on the associated sample results.

4.7.2 Phase IIB Sampling Event

Surface Water

All laboratory method blanks were analyte-free and no data usability issues were observed.

Soil

Metals and Mercury: Antimony, beryllium, cadmium, silver, thallium, and mercury were detected in multiple laboratory blank samples (ICBs, CCBs, and MB). The associated samples were qualified as described above.

Groundwater

All laboratory method blanks were analyte-free and no data usability issues were observed except as noted below.

Ferrous Iron: Ferrous iron was detected in multiple laboratory blank samples (ICB and CCB). One associated sample result was qualified "U" as non-detect and practical quantitation limit (PQLs) were elevated to sample results.

VFAs: Multiple sample results less than 5X the blank detection for acetic, propionic, and formic acid were qualified "U" as non-detect and PQLs were elevated to sample results. There was one instance for formic acid in sample OU2-MW13-OCT19, in which MDL was elevated to sample result.

4.8 Laboratory Control Samples (LCS)

An LCS consists of a matrix similar to that of the field sample and is spiked with known concentrations of analytes. The LCS serves as a monitor of the overall performance of each step during the analysis, including sample preparation. LCSs were analyzed for each sample batch for PCB congeners, PCB Aroclors, and metals analysis.

For PCB Aroclor and PCB congener analyses, if the LCS recovery was less than acceptance criteria, the associated detected analytes were qualified “J-” as estimated low, and non-detect results were qualified “R” as rejected non-detect and considered unusable for decision-making purposes. If the LCS recovery was greater than acceptance criteria, the associated detected analytes were qualified “J+” as estimated high, and non-detect results did not require qualification. For metals, similar actions were followed for qualification; however, if the LCS recovery was low and the analyte was not detected in the sample, then the results were qualified “UJ” as estimated non-detect. If LCS %R was above 150% (for both detects and non-detects) or below 40% (non-detects only) associated samples results were qualified “R” as unusable.

4.8.1 Phase IIA Sampling Event

Surface Water

Water quality parameters methods did not call for LCS analysis.

Soil

All LCS recoveries for SVOCs, PCB Aroclors, and metals analyses were within control limits.

Sediment

All LCS recoveries for PCB Aroclors, pesticides, and metals analyses were within control limits.

Biota

All LCS recoveries for SVOCs, PCB congeners, and metals analyses were within control limits.

4.8.2 Phase IIB Sampling Event

Surface Water

All LCS recoveries for PCB congeners and metals analyses were within control limits.

Soil

All LCS recoveries for PCB Aroclors and metals analyses were within control limits.

Groundwater

All LCS recoveries for all analyses were within control limits except as noted below.

VFAs: Multiple sample results were qualified “UJ” due to hexanoic acid low recovery in the LCS.

OU2 Surface Water

VOCs: The precision between LCS/LCSD were outside of acceptance criteria for bromomethane and 1,2-dibromo-3-chloropropane. Multiple samples were qualified “UJ” as estimated, non-detect.

4.9 Matrix Spike/Matrix Spike Duplicate and Laboratory Duplicate

A field sample is split into three portions (original, MS, and MSD) and known amounts of analytes are spiked into the original sample. The recovery for the MS and MSD is assessed for accuracy, and the precision between the two spiked samples is assessed for precision. MS and MSDs were collected in the field at a rate of 5% or one per week per matrix was collected as required by the CLP program

If the MS/MSD recovery was less than acceptance criteria, the associated detected analytes were qualified “J-” as estimated low, and non-detect results were qualified “UJ” as estimated non-detect. If the MS/MSD recovery was greater than acceptance criteria, the associated detected analytes were qualified “J+” as estimated high, and non-detect results did not require qualification. If the precision between MS and MSD recoveries exceeded acceptance criteria, the analyte was qualified “J” or “UJ” as estimated.

Metals analysis evaluates analytical precision by performing a duplicate analysis of a field sample rather than determining the precision between two spiked samples. If the RPD exceeded 20% and the samples results were greater than five times the CRQL, then the associated detected analytes were qualified “J” as estimated and non-detect results were not qualified.

4.9.1 Phase IIA Sampling Event**Surface water**

All MS/MSD recoveries for water quality parameters were within control limits.

Soil

SVOCs: MS/MSD samples were collected at the planned frequency; however, the CLP scope of work does not require an MS/MSD to be analyzed with each batch.

PCB Aroclors: MS/MSD samples were collected at the planned frequency. There were two instances where the analyte recovery for Aroclor-1016 and Aroclor-1260 was greater than acceptance criteria, and three instances where the RPD between recoveries exhibited precision outside of acceptance criteria.

Mercury: MS/MSD samples were collected at the planned frequency. There one instance where the analyte recovery was greater than the acceptance criteria and sample result was qualified “J+” as estimated, high biased. There was one instance where the analyte recovery was less than the acceptance criteria and sample result was qualified “J-” as estimated, low biased.

Metals: MS/MSD samples were collected at the planned frequency. All recoveries were within the acceptance criteria.

Sediment

MS/MSD samples were collected at the planned frequency. All recoveries were within the acceptance criteria.

Biota

MS/MSD samples were collected at the planned frequency. All recoveries for PCB congeners and metals were within the acceptance criteria.

SVOCs SIM: Matrix spike for naphthalene was recovered above the acceptance limit for sample OU3-P2-EA02-JUL19. The parent sample was qualified “J” as estimated.

4.9.2 Phase IIB Sampling Event**Surface Water**

MS/MSD samples were collected at the planned frequency. All recoveries for PCB congeners were within the acceptance criteria.

Metals: MS/MSD samples were collected at the planned frequency. There was one instance where barium recovery for was less than acceptance criteria. The associated analyte qualified “J-” as estimated low biased.

Soil

MS/MSD samples were collected at the planned frequency for SVOCs and PAHs (SIM).

PCB Aroclor: MS/MSD samples were collected at the planned frequency. There was one instance where MS/MSD was recovered below the acceptance criteria for Aroclor-1260, RPD between recoveries exhibited precision outside of acceptance criteria, and the parent sample was qualified “J” as estimated.

Metals: MS/MSD samples were collected at the planned frequency. There was one instance where MS/MSD was recovered below the acceptance criteria for arsenic and the parent sample was qualified “J” as estimated.

Mercury: MS/MSD samples were collected at the planned frequency. There was one instance where MS/MSD was recovered below the acceptance criteria for mercury and the parent sample was qualified “J-” as estimated, low biased.

Groundwater

MS/MSD samples were collected at the planned frequency for VOCs, pesticides, SVOCs and PAHs (SIM), and metals. All recoveries for were within the acceptance criteria.

Ferrous Iron: There was one instance where matrix spike for ferrous iron was recovered above the acceptance criteria and parent sample result was qualified “J” as estimated. There was one instance where matrix spike was recovered below the acceptance criteria for ferrous iron and parent sample was qualified “UJ” as estimated non-detect.

4.10 Deuterated Monitoring Compounds and Surrogates

DMCs and surrogates are compounds not normally found in the environment that are spiked into samples prior to extraction or prior to analysis. The percent recovery and retention time of each DMC or surrogate is used to assess overall laboratory performance and efficiency of the analytical technique. DMCs are standards are spiked into samples for VOC and SVOC analyses, and surrogates are standards spike into samples for PCB Aroclor analysis.

If the DMC or surrogate was recovered less than the method acceptance criteria, then the associated detected analytes were qualified “J-” as estimated low, and the non-detect analytes were qualified “UJ” as estimated non-detect. If the DMC recovery was less than 10%, then the non-detect analytes were qualified “UR” as rejected non-detect and considered unusable for decision- making purposes. If the DMC was recovered greater than the method acceptance criteria, then the associated detect analytes were qualified “J+” as estimated high, and the non-detect analytes did not require qualification.

4.10.1 Phase IIA Sampling Event

Surface water

DMCs or surrogates were not method applicable for water quality parameters.

Soil

SVOCs: There was one instance where the result for 1,4-dioxane was qualified “UR” due to recovery of surrogate 1,4-dioxane-d8 below 10%. Seventy-eight instances occurred where associated non-detected sample results were qualified “UJ” due to recovery of surrogates 1,4-dioxane-d8, 4,6-dinitro-2-methylphenol-d2, and 4-nitrophenol-d4 outside of acceptance limits.

PCB Aroclors: There were multiple instances where surrogates tetrachloro-m-xylene and decachlorobiphenyl were recovered outside of the acceptance criteria. There were 11 instances where positive detections for an Aroclor were qualified “J+” as estimated high or qualified “J-” as estimated low and 11 instances where non-detected sample results for Aroclors were “UJ” qualified as estimated non-detect, due to a surrogate recovery that was outside the acceptance criteria.

Sediment

The surrogates in the PCB Aroclor analyses were all within acceptance criteria.

SVOCs: There were a total of 18 instances where associated non-detected sample results were qualified “UJ” due to surrogate 1,4-dioxane-d8, 4,6-dinitro-2-methylphenol-d2, 4-nitrophenol-d4, and 2-chloropheno-d4 recovered below the acceptance limits.

Pesticides: There were two instances where positive detections associated sample results were qualified “J+” as estimated high, due to a surrogate recovery for tetrachloro-m-xylene and decachlorobiphenyl greater than the acceptance criteria.

Biota

SVOCs SIM: There was one instance where surrogate 2-Fluorobiphenyl was recovered below the acceptance criteria for sample OU3-P2-EA02-JUL19 and sample results were qualified “J” or “UJ” as estimated values. There was one instance where surrogate Terphenyl-d14 was recovered above the acceptance criteria for sample OU3-P3-EA03-JUL19 and sample results were qualified “J” as estimated.

4.10.2 Phase IIB Sampling Event**Surface Water**

LSASD did not provide surrogate QC data.

Soil

SVOCs: There were a total of 23 instances where associated non-detected sample results were qualified “UJ” due to recovery of surrogates 1,4-dioxane-d8 outside of acceptance limits.

PCB Aroclors: There were multiple instances where surrogates tetrachloro-m-xylene and decachlorobiphenyl were recovered outside of the acceptance criteria. There were a total of six instances where positive detections for an Aroclor were qualified “J-” as estimated low, three instances where they were qualified “J+” as estimated high, and 14 instances where non-detected sample results for Aroclors were “UJ” qualified as estimated non-detect, due to a surrogate recovery being outside the acceptance criteria.

Groundwater

LSASD did not provide surrogate QC data.

4.11 Internal Standard

VOC and SVOC analyses were quantitated using the internal standard method. Internal standards ensure that the gas chromatograph/mass spectrometry sensitivity and response are stable during every experimental run. Metals analysis also utilizes internal standards with inductively coupled plasma-mass spectrometry to measure the existence and magnitude of instrument drift and physical interferences.

For VOC and SVOC analyses, if the internal standard area count was less than the associated continuing calibration internal standard area, the associated detected analytes were qualified “J+” as estimated high, and the non-detect analytes were qualified “UJ” as estimated non-detect. If the internal standard area count was greater than 200% of the associated standard area, then all associated analytes were qualified “J-” as estimated low, and the non-detect analytes did not require qualification. For metals analysis, if the relative intensity of the internal standards falls outside acceptance criteria, the laboratory must reanalyze the original sample at a two-fold dilution with internal standard added. If the internal standard results did not pass acceptance criteria after dilution, detected analytes were qualified “J” as estimated and non-detect analytes were qualified “UJ” as estimated non-detect.

4.11.1 Phase IIA Sampling Event

Surface Water

Water quality parameters methods did not call for internal standards.

Soil

The internal standard counts for all SVOCs and PAH (SIM) and metals analyses were within acceptance criteria.

Sediment

The internal standard counts for all SVOCs and PAH (SIM) and metals analyses were within acceptance criteria.

Biota

The internal standard counts for all SVOCs and PAH (SIM) and metals analyses were within acceptance criteria.

PCB Congeners: Multiple recoveries for the internal standards were outside of the acceptance criteria and associated sample results were qualified “J” as estimated or “UJ” as estimated non-detect. Internal standard recoveries for method blank was recovered below the acceptance criteria for 13C-2-MoCB, 13C-4-MoCB, and 13C-2,2'-DiCB. The associated sample results were qualified “J” as estimated or “UJ” as estimated non-detect.

4.11.2 Phase IIB Sampling Event

Surface Water

LSASD did not provide internal standard QC data.

Soil

The internal standard counts for all SVOCs and PAH (SIM) and metals analyses were within acceptance criteria.

Groundwater

LSASD did not provide internal standard QC data.

4.12 Compound Identification

The retention times of reported compounds must fall within the calculated retention time window between the two chromatographic columns used for the PCB Aroclor and pesticide analyses.

Data qualifications were made on the criteria as described below:

Percent Difference	Qualifier
0% - 25%	No qualification
26% - 200%	Professional Judgment
101% - 200% (interference detected, either column)	JN
> 50% (PCB value < CRQL, value raised to CRQL)	U
> 200%	R

Key:

CRQL = contract required quantitation limit

JN = tentatively identified compound

PCB = polychlorinated biphenyl

U = non-detect

R = unusable

If the ion abundance ratio for PCB congener analysis was outside of acceptance limits, the detected compound in the associated sample was qualified “J” as estimated.

4.12.1 Phase IIA Sampling Event

Surface Water

Water quality parameters methods did not call for compound identification.

Soil

PCB Aroclors: There were 10 instances where PCB Aroclor results were qualified “J” as estimated because the %D between columns was greater than 25%. There were seven instances where results were qualified “U” as non-detect. The sample results qualified “U” as non-detect were low-level detections that should not impact the decision-making.

Sediment

PCB Aroclors: The sample results all exhibited a %D within the acceptable criteria.

Biota

PCB Congeners: The sample results all exhibited a %D within the acceptable criteria.

4.12.2 Phase IIB Sampling Event**Surface Water**

PCB Congeners: The sample results all exhibited a %D within the acceptable criteria.

Soil

PCB Aroclors: There were 19 instances where PCB Aroclor results were qualified “J” as estimated because the %D between columns was greater than 25%. There was one instance where result was qualified “JN” as tentatively identified because %D of columns was greater than 200%. There was one instance where result was qualified “U” as non-detect. The sample results that were qualified “U” as non-detect were low-level detections that should not impact decision-making.

Groundwater

LSASD did not provide compound identification QC data.

4.13 LSASD Qualification Data Review

LSASD provides QC data and acceptance criteria for laboratory blanks, LCS, and/or MS/MSD. Changes to reporting limits and other QC issues were reported in the case narrative. All QC samples outside acceptance criteria and case narrative notation are summarized in the previous subsections. LSASD did not provide additional information for tuning and calibration, surrogates, internal standards, and compound identification. However, the electronic data deliverable (EDD) provided by LSASD indicates the laboratory and validation qualifiers. The data noted as qualified by in the validation qualifier field are summarized below.

4.13.1 Phase IIA Sampling Event**Surface Water**

No additional QA/QC parameters were outside of the acceptance criteria for water quality data.

Soil

SVOCs: Hexachlorocyclopentadiene was qualified “UJ” as estimated non-detect for rinsate blank samples OU3-RB02-17JUL19 and OU3-RB03-18JUL19.

4.13.2 Phase IIB Sampling Event

Surface Water

Metals: Aluminum and thallium were qualified “UJ” as estimated non-detect for rinsate blank sample OU3-RB04-03OCT2019. Thallium was qualified “UJ” as estimated, non-detect for rinsate blank sample OU3-RB06-03OCT2019.

DOC: DOC was qualified “UJ” as estimated non-detect for rinsate blank sample OU3-RB05-01NOV2019.

Soil

SVOCs: Hexachlorocyclopentadiene, 3,3'-dichlorobenzidine, benzo(a)anthracene, chrysene, bis(2-ethylhexyl)phthalate, di-n-octyl phthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenzo(a,h)anthracene, and benzo(g,h,i)perylene were qualified “UJ” as estimated, non-detect for rinsate blank sample OU3-RB01-01OCT19.

Metals: Thallium was qualified “UJ” as estimated non-detect for rinsate blank sample OU3-RB01-01OCT19.

Groundwater

TOC: TOC was qualified “J” as estimated for sample OU2-MW01-OCT19.

MEE: Methane was qualified “J+” as estimated, biased high for reanalysis of sample OU2-MW22-OCT19.

Ethane was qualified “J-” as estimated, biased low for sample OU2-MW22-OCT19.

Ethane and ethylene were qualified “UJ-” as estimated non-detect, low biased for sample OU2-MW21-OCT19. Ethane was qualified “UJ-” as estimated non-detect, low biased for sample OU2-MW22-OCT19.

VOCs: Carbon disulfide was qualified “J-” as estimated, biased low for samples OU2-MW18-OCT19, OU2-MW12-OCT19, and OU2-MW13-OCT19.

Dichlorodifluoromethane, bromomethane, carbon disulfide, and methylene chloride were qualified “UJ-” as estimated non-detect, low biased for samples OU2-MW14-SEP19, OU2-MW15-SEP19, OU2-MW20-SEP19, OU2-MW23-SEP19, OU2-MW11-OCT19, and OU2-MW05-OCT19.

1,1,2-Trichloro-1,2,2-trifluoroethane, 2-hexanone, 4-methyl-2-pentanone, carbon disulfide, chloromethane, cyclohexane, dichlorodifluoromethane, and methylene chloride were qualified “UJ-” as estimated non-detect, low biased for samples OU2-MW01-OCT19, OU2-MW02-OCT19, OU2-MW04-OCT19, OU2-MW06-OCT19, OU2-MW08-OCT19, OU2-MW09-OCT19, OU2-MW16-OCT19, OU2-

MW19-OCT19, OU2-MW21-OCT19, OU2-MW22-OCT19, and OU2-MW-OCT19-FD.

1,1,2-Trichloro-1,2,2-trifluoroethane, 2-hexanone, 4-methyl-2-pentanone, chloromethane, cyclohexane, dichlorodifluoromethane, and methylene chloride were qualified “UJ-” as estimated non-detect, low biased for samples OU2-MW12-OCT19, OU2-MW13-OCT19, and OU2-MW18-OCT19.

OU2 Surface water

1,2-Dibromo-3-chloropropane and bromomethane were qualified “UJ” as estimated non-detect for samples OU2-SW04-OCT19, OU2-SW05-OCT19, OU2-SW-OCT19-FD, OU2-SW06-OCT19, OU2-SW07-OCT19, and OU2-SW08-OCT19.

4.14 Laboratory Qualifiers

Deviations from acceptable QC specifications are discussed in the data assessments reports (see Appendix A) and summarized above. The data validators added appropriate qualifiers to the data to indicate potential concerns with data usability. These qualifiers were transferred to the data presented on summary tables in Section 3 and Appendix B. For the Phase I DER, the following qualifiers were added:

- J – The qualifier indicates an estimated value because the associated QC data indicated a potential laboratory or matrix problem or interference. The qualifier is also used to indicate an estimated value that is detected between the MDL and quantitation limit.
- J+ – The qualifier indicates an estimated value because the associated QC data indicated a potential laboratory or matrix problem or interference and is estimated high.
- J- – The qualifier indicates an estimated value because the associated QC data indicated a potential laboratory or matrix problem or interference and is estimated low.
- JN – The analyte has been tentatively identified or presumptively as present and the associated numerical value is the estimated concentration in the sample.
- U – The result is considered non-detect. The laboratory assigned this qualifier to analytes not present at detectable concentrations (above the instrument detection limit or MDL). The qualifier is also used on a sample result if the analyte is detected in an instrument or method blank and it is likely that the sample result is due to the same contamination as the blank. The sample result is qualified U and the reporting limit is elevated to the sample result.

- UJ – The result is considered non-detect at an estimated PQL.
- UJ— The result is considered non-detect, low biased at an estimated PQL.
- R – The data are not usable and the results are rejected due to serious deficiencies in meeting QC criteria.

4.15 Completeness

Table 4-5 presents the number of data points qualified by each qualifier and calculates data completeness. Only one data point was rejected except for a non-detect value of 1,4-dioxane in OU3-R8-ID06E-FD, but the original sample was not qualified. Field QC samples results do not indicate any concerns with the field procedures. Both field and laboratory QC concerns did not have a significant impact on the overall usability and representativeness of the dataset. Samples were collected as required in the QAPP except as follows:

- PCB congener analysis results for field duplicate of OU3-R4-SW10-EV2-FF-NOV19 indicate the parent was not filtered. Therefore, the parent sample results were marked as non-reportable and duplicate sample results were reported for this location;
- One rinsate blank was not collected in the second high-flow event for total congeners and metals;
- OU3-RB01-16JUL19 collected during Phase IIA for the soil trowel was not analyzed because of shipping delays. The rinsate blank was recollected during Phase IIB;
- Sample OU3-R7-T12E-S04-Z[X] (2019) was collected and analyzed; however, earthworms were not collected at this location as planned. An additional sample for earthworms was collected at OU3-R7-T10W-S01-Z[X];
- An addendum to the QAPP for samples collected at additional residential properties and Transect 12 was sent to EPA and USACE for approval prior to Phase IIB;
- Not all industrial soil samples were collected due to lack of soil. In all cases, subsurface sample Z3 could not be collected because the subsurface material caused refusal;
- No sample was collected from MW-10 due an obstruction in the well;
- MW-13 was not analyzed for TOC/DOC, ferrous iron, or dissolved gases (MEE) and MW-09 was not analyzed for TOC/DOC or ferrous iron due to restricted sample volume;
- The sample location upstream of dam in Oak Orchard Creek (BG-SD01) could not be collected because there was no sediment; and
- For tissue, samples OU3-P1-EA01 and OU3-P1-EA02 were composited as OU3-P1-EA01/EA02 and not analyzed for PAH or percent lipids. OU3-P1-EA03 was not analyzed for PAH, percent moisture.

4.16 Data Management

Data management consisted of verifying collection and storage of field samples. Samples submitted to the CLP were logged using Scribe[®] software; otherwise sample collection information was maintained on the chain of custody. Electronic analytical data from the CLP were received as a CLP flat format file; however, electronic data received from subcontracted laboratories were received in EQuIS[®] Region 2 format. The CLP EDD was converted to Region 2 format using the EQuIS program and the data were submitted to EPA Region 2. All of the analytical data were translated into the CLP format in a Microsoft Access database. This Microsoft Access database was the basis for the development of a project-specific database for the DER that integrated RI data, data generated from the GIS geodatabase, and electronic data from other investigations developed as part of the Data Gap analysis task.

Trip reports were prepared by E & E personnel for surface water, soil, groundwater, and IDW samples that were transported to the assigned CLP laboratories. Trip reports included laboratory assignments, assigned field QC, and detailed description of field blank associations. Trip reports prepared for CLP laboratories are presented in Appendix C-10.

Data validation received by CLP laboratories included field QC evaluation for field duplicate values and field blank detections based on the trip reports. The data were reviewed as described in the previous subsections.

Data assessment packages generated by EPA Region 2 HWSB/HWSS were reviewed by the E & E Project Chemist for completeness. All qualifications were verified and professional judgment interpretations separate from data validator qualifications were noted above. General QC checks on the EDDs included the following:

- Chemical names, Chemical Abstract Service (CAS) numbers, and analytical methods were verified against the EPA Region 2 valid value list and updated if necessary;
- Reporting units for results and MDLs were standardized to match historical units used in the OU2 database;
- Fields for sample matrix, sample type, result type code, detect flag, reportable flag, and validated flag were added if missing or verified against EPA Region 2 valid values and updated if necessary;
- Sample description fields for reach location and sample type were added or verified; and
- Data were checked against the original hard copy report to verify electronic values.

All data imported into the OU3 database were checked to assure that total PCB for both Aroclors and congeners or PAH concentrations were included and new

sums were calculated. A total PCB Aroclor concentration was calculated for each sample by summing together the concentrations of detected values and assuming a value of zero for non-detect Aroclors. A total PCB congener concentration was calculated for each sample by summing together the concentrations of detected values and assuming a value of zero for a non-detect congeners. Total PAHs for the 16 TCL were summed using a similar method. Each sample was reported as the total concentration with two significant figures to maintain laboratory accuracy. For the BERA, Total PAHs were summed were also summed for low and high molecular weight PAH. Also for the BERA, a second set of sums were calculated by adding a value of one-half the reporting limit for non-detected compounds.

A Region 2 format EDD of the analytical and location data will be submitted to EPA Region 2 database administrator. In the instances where data was received in the CLP EDD format, the data will be transformed to Region 2 format using the EQuIS database.

5

Overall Assessment

The following subsections present a preliminary assessment for the Phase IIA (July/August 2019) surface water and soil sampling event; Phase IIB (October/November 2019) surface water, soil, and groundwater sampling event; and Phase IIB sediment and biota sampling. Preliminary COPCs were identified based on Phase I sampling results and preliminary risk evaluations (i.e., screening-level ecological risk assessment [SLERA] and Pathways Analysis Report [PAR] for the BHHRA) as well as historical studies in OU3 and chemicals of concern for the OU2 source area identified as part of the SLERA. These COPCs for OU3 are PCB Aroclors, barium, chromium, copper, lead, nickel, selenium, vanadium, and PAHs. The BHHRA and BERA currently being conducted for OU3 will determine the final COPCs for OU3. For groundwater, the investigation focused on determining the source of elevated VOC contamination (i.e., chlorinated solvents) previously detected in the OU2 RI/FS and whether natural attenuation will potentially decrease VOC contamination to acceptable levels. The figures in this section present the COPC concentrations in surface water (see Figures 5-1a through 5-1c) and soils (see Figures 5-2a through 5-2s). For sediment and biota samples, the results were collected in support of the BERA and the evaluation of the data is presented in Appendices F, G, and H of the BERA (E & E Forthcoming).

5.1 Surface Water Data

Surface water samples were collected from five locations directly in Eighteen Mile Creek. Figures 5-1a through 5-1c present the OU3 surface water locations by COPC concentrations between four sampling events (Phase I and Phase II). During Phase II sampling (October and November 2019), the sample team attempted to collect samples during high-flow events to replicate data collection that occurred for samples SW13 through SW15 collected on November 2, 2018, which was when the highest average water levels at FM02 were recorded. At R6-SW14, only metals were collected on November 2, 2018, as part of a resampling effort for samples collected in October 2018. The results suggest that the higher concentrations of metals were related to higher flow.

Figure 5-1a compares concentrations of PCB congeners in samples collected during high-flow events during Phase II, to concentrations of PCB congeners in samples collected during Phase I. The highest concentrations of PCB congeners in Phase II were found at locations SW10, SW14, and SW18. Lower concentrations

were found at location SW05 below Burt Dam and location SW21, closest to the PCB source areas.

Figures 5-1b and 5-1c compare concentrations of lead and copper in samples collected during high-flow events during Phase II, to concentrations of lead and copper in samples collected during Phase I. Concentrations of lead and copper in samples collected during Phase II events were generally higher than concentrations in samples collected during the Phase I events at all locations except SW05, which is below Burt Dam, and SW14 where samples were collected during the very high-flow event on November 2, 2018. However, even though concentrations did not reach levels captured at SW14 during the October 2018 high-flow event, it is evident that high-flow events do correlate to higher metal concentrations. The results indicate that higher flows lead to increased contamination transport. During Phase II, the samples were all collected on the same day, while during Phase I the samples were collected on different days during the same event. In general, the concentrations of metals increase at locations SW10, SW14, and SW18 farther downstream from location SW21 closest to the suspected source areas. Concentrations of metals in samples collected at SW05 below Burt Dam were the lowest.

The results of the Phase II surface water sampling support the CSM that contaminated sediment in OU3 Reaches 5 to 7 is resuspended and transported downstream particularly during high-flow events. A more detailed evaluation of the chemical concentration and flow data will be included in the RI.

5.2 Floodplain Soil Data

As described in Sections 2 and 3, creek bank floodplain soil samples were collected in Phase II from 19 properties along Eighteen Mile Creek OU3. The OU3 floodplain soil sample locations were selected to be representative of creek floodplain areas, to further delineate known contaminated areas and test a contamination model and to support the BERA and BHHRA.

Figures 5-2a through 5-2s illustrate results regarding the floodplain soil sampling conducted in Phase II. Each figure shows a close-up of the soil sample transect and sample points and identifies the location of the transect along creek. Each figure also presents a graph showing general concentration ranges for total PCB Aroclors, PAH mixtures, lead, and copper in each 0-to-6-inch and 6-to-12-inch sample collected at each sample point. Some sample locations were also collected from 12 to 24 inches to further delineate vertically known contaminated locations.

The concentration ranges were selected for each analyte for this DER based primarily on applicable/relevant regulatory references and the ranges of analytical results reported. Further review and discussion of these data may result in different concentration ranges of interest. Concentrations of COPCs in the background samples were not considered in setting screening ranges. For the purposes of this DER, the concentration ranges of general interest were selected as follows:

- **Total PCB Aroclors:** 0.1 ppm (or milligrams per kilogram [mg/kg], for soil) is the unrestricted use soil cleanup objective (SCO) in 6 New York Codes, Rules, and Regulations 375-6.8; 1 ppm is one of the restricted use SCOs for certain receptors; and 10 ppm is just the next tenfold multiplier.
- **PAH Mixtures:** 1 ppm is the unrestricted use SCO for benzo(a)pyrene, which is often a risk driver for PAHs; 10 ppm is just a logical breakpoint based on the spread of the data; 100 ppm is a commonly occurring unrestricted use SCO and restricted use SCO for many PAHs; and 500 ppm is a commonly occurring restricted use SCO for many PAHs and receptor scenarios.
- **Lead:** 200 mg/kg is the EPA regional screening level (RSL) approved in November 2018 for lead in soil for residential properties; 400 mg/kg is the prior screening level for residential properties; and 1,000 mg/kg is a logical breakpoint based on the spread of the data. It should be noted that the EPA ecological soil screening level (Eco-SSL) for lead for protection of ground-feeding birds is 11 mg/kg, many times less than the revised human health RSL. Therefore, it is possible for lead soil concentrations less than 200 mg/kg to pose an unacceptable ecological risk.
- **Copper:** 50 ppm is the unrestricted use SCO; 270 ppm is a commonly occurring restricted use SCO for many receptor scenarios; and 1,000 ppm is just a logical breakpoint based on the spread of the data.

5.2.1 Transects from New Properties

Samples were collected on 12 new properties in Reach 7 as shown on Figures 5-2a to 5-2l. Samples collected on each property were labelled as transects, T14 to T25, even though on some properties a full transect was not collected. T14 was a property identified during Phase I, but the access agreement was not obtained until after the field work was completed. The other 11 properties were selected based on a GIS model, which integrated the light detection and ranging (LiDAR) elevation data and the potential extent of contamination from sediment based on the concentrations of COPCs found in the Phase I floodplain soil samples collected on transects. Properties were prioritized based on the following factors: properties zoned as residential, potential contamination impacts (GIS model), and degree of access to the floodplain. A total of 11 new properties were selected in conjunction with EPA and USACE and approval by the landowner. The rationale for selection and proposed sample locations were documented in an addendum to the QAPP approved in September 2019. The floodplain soil data collected from the additional residential properties will be used to assess risk to the residential receptor for the BHHRA.

The overall floodplain results from the new properties are consistent with CSM and Phase I results. Some overall observations about the transect data for the new properties consist of the following:

- For an individual transect, higher COPC concentrations tended to be reported for sample points closer to the creek.
- Concentrations for an individual analyte were not observed to occur with any discernible pattern with respect to depth. That is, higher concentrations of an individual analyte sometimes occurred in the subsurface samples (6 to 12 inches BGS) and sometimes in the surface samples (0 to 6 inches BGS).
- T14 samples were collected in a wetland area similar to sample T11 collected in Phase I, but closer to the source area in OU2 (see Figure 5-2a). Samples were collected to 2 feet to determine if contamination would extend deeper in wetlands with potential for higher sedimentation rates. Higher concentrations of PCB Aroclors and lead were found in the two sample locations closest to the creek.
- T21 samples were collected from the oxbow (see Figure 5-2l). The oxbow was suspected to potentially contain historically deposited sediments. COPCs were detected at low levels in all three samples. A separate transect was not collected on the property because the proposed location was very close to T24.

5.2.2 Additional Sampling on Existing Properties

Samples were collected on seven existing properties in Reach 7 as shown on Figures 5-2m to 5-2s. Samples collected on each property were labelled as additional locations numbers (e.g., S05) starting from the last sample collected during Phase I except for the samples co-located with soil invertebrate samples. These samples were collected from existing locations and were designated with “W” and the same location number. The potential extent of contamination determined from the GIS model described above is shown as purple hatching on the figures. Sample locations were selected in part to verify the ability of the model to predict the extent of contamination in the floodplain. Only the results from the new sample locations are shown on the figures unless the samples were co-located. Two large wetland areas in Reach 4 (T04) and Reach 7 (T11) both exhibited low concentrations of contaminated soil/sediment that were not consistent with the other properties and GIS model of the extent of contamination. Additional samples were collected at T11 to confirm the low concentrations found in the samples collected in Phase I and explore the potential for contamination at lower depths from expected higher sedimentation in wetland areas.

The overall floodplain results from the existing properties are generally consistent with CSM and Phase I results. Some overall observations about the transect data for the existing properties consist of the following:

- Samples at T05, T06, and T08 were collected to provide additional data for the BHHRA as well as delineate the high concentration of PCB Aroclors and lead identified in Phase I (see Figures 5-2m, 5-2n, and 5-2o respectively). Higher concentrations of the lead in the subsurface soils at T05 and T06 and the PCB Aroclors at the surface soils at T08 were confirmed. A more detailed

discussion of the extent of the contamination at each transect is provided below.

- Co-located samples of earthworms and/or other soil invertebrates were collected at T09, T10, and T12 (see Figures 5-2p, 5-2s, and 5-2r, respectively). The Phase II soil samples were collected adjacent to the previous Phase I locations and the results for both phases are shown on the figures. Although the results for sample S04 and S04W are shown on T12 (see Figure 5-2r), the earthworm sample was not large enough at this location and an alternate sample at T10 S01 was collected. The COPCs concentrations from Phase II samples generally coincide with the Phase I sample concentrations. A more detailed discussion of the extent of the contamination at each transect is provided below. Results of the associated biota samples are discussed in Section 5.6.
- Samples were collected at T11 perpendicular to the original transect and at depth up to 3 feet to verify that impacted soils are not deeper than 1 foot (see Figure 5-2q). COPCs were detected in all samples at low concentrations that were slightly higher than concentrations than Phase I samples. The results did not verify the GIS model, suggesting that other factors in addition to elevation will need to be used to predict the extent of impacts from contaminated sediment.

Properties with Additional Samples for BHHRA

Reach 5, Transect T05: The Phase I transect was located on the east side of the creek in a largely wetland area below the embankment of a residential property (see Figure 5-2m). Four additional sample locations were collected to delineate the concentrations of PCB Aroclors and lead identified in Phase I and collect additional data for the BHHRA. All sample locations are 1 to 2 feet above the creek bank in an area that is flat and prone to flooding. The GIS model predicted patchy areas of contamination because of the flat elevation. PCB Aroclors were detected at less than 1 ppm in all samples. Concentrations of PAHs, lead, and copper were generally low except in S08, which had elevated concentrations of lead and copper in the subsurface. The results indicate that flooding has deposited creek contaminants in floodplain areas in Reach 5. However, depositional patterns cannot be identified because elevated contaminated concentrations were observed at random locations, which is consistent with the sporadic outcome of the GIS model that is also based on elevations. The results provide enough additional data to support the BHHRA.

Reach 6, Transect T06: The Phase I transect was located on the east side of the creek in a low-lying area of a residential property (see Figure 5-2n). Four additional sample locations were collected to delineate the concentrations of PCB Aroclors and lead identified in Phase I and collect additional data for the BHHRA. The area is flat and prone to flooding. PCB Aroclors were not detected at the sample location farthest from the creek (S07) and were detected at less than 1 ppm at most of the other locations. Concentrations of PAHs were generally low. Lead exceeded 200 ppm in six of the eight samples. Copper results were

varied but exceeded 270 ppm in three of the subsurface samples. The lowest concentrations were detected at S07, which was outside of the extent of contamination predicted by the GIS model. The results provide enough additional data to support the BHHRA.

Reach 6, Transect T08: The Phase I transect was located on the east side of the creek in a maintained lawn of a residential property (see Figure 5-2o). Four additional sample are located south of the Phase I transect and samples were collected from these locations to delineate the concentration of PCB Aroclors and lead identified in Phase I and for the BHHRA. PCB Aroclors were detected in the samples at all locations except S07. The highest concentration was at S08 where PCB Aroclors were detected greater than 10 ppm. Concentrations of PAHs, lead, and copper were generally low except at locations S05, where lead exceeded 400 ppm and copper exceeded 270 ppm in both the surface and subsurface samples. The lowest concentrations of all COPCs were detected at S07, which was outside of the extent of contamination predicted by the GIS model. The results provide enough additional data to support the BHHRA.

Properties with Additional Samples to Delineate Contamination

Reach 6, Transect T09: The Phase I transect was located on the east side of the creek in a marsh and wooded area of a commercial property owned by a topsoil business (see Figure 5-2p). The area is immediately upstream of a small bridge and prone to flooding. Four additional sample locations were selected to delineate the concentration of PCB Aroclors and lead identified in Phase I. PCB Aroclors were not detected, or were detected at less than 0.1 ppm in the two new sample locations farthest from the creek, and were detected greater than 1 ppm in the samples closest to the creek. Lead and copper were detected below 200 and 50 ppm, respectively, at these locations as well. COPCs were detected at higher concentrations at the two new locations closest to the creek consistent with area of contamination predicted by the GIS model. The results continue confirm that flooding has deposited creek contaminants in floodplain areas in Reach 6.

Reach 7, Transect T11: The Phase I transect was located on the west side of the creek in a largely wetland area of a residential property that also functions as an at-home business (see Figure 5-2q). Four additional sample locations were collected perpendicular to the original transect and at a depth up to 2 feet to verify that impacted soils are not deeper than 1 foot and to test the contamination extent model. PCB Aroclors were not detected in the subsurface at 1 to 2 feet and were detected at less than 0.1 ppm in the sample from intervals 0 to 0.5 and .5 to 1 feet. Concentrations of PAHs, lead, and copper were low in all samples. Samples at deeper depths are consistently lower concentrations than the surface samples except at S09 where a slightly higher concentration of PAHs was detected.

Reach 7, Transect T12: The Phase I transect was located on the east side of the creek in a largely wetland area of a property owned by Niagara County (see Figure 5-2r). Ten locations were sampled during Phase II because the PCB Aroclors

and metals results from Phase I did not fit the CSM for OU3 (i.e., the highest detections were detected in samples set back from the creek, which was not consistent with the model that predicts that contamination related to flooding should be closest to the creek). Locations S05 to S08 were sampled during Phase IIA and locations S09 to S14 were sampled during Phase IIB. Four of the new locations (i.e., S05 S06, S13, and S14) were within the wetland area that is clearly prone to flooding. Six of the new locations S07 to S12 were collected above the approximately 5-foot bank where numerous unnatural piles are present near a historical road that is no longer accessible. PCB Aroclors were detected in all samples and the highest concentrations exceeding 10 ppm were detected at new locations S08, S09, S11, and S12. Similar to the PCB Aroclors, the concentrations of lead and copper were highest at the locations along the flood bank. Samples collected at the Z3 interval (1 to 2 feet) reported low levels of COPCs in all new samples. Concentrations of PAHs were below 10 ppm at all new sample locations except S06.

5.3 Industrial Soil Data

Soils samples were collected from creek bank locations on VanDeMark Chemical Inc. (also known as Isochem) property located in Reach 8 in the industrialized reaches of Eighteen Mile Creek OU3 as shown on Figure 5-3. These samples were collected to delineate COPCs found at high concentrations during Phase I sampling at location ID06E.

Total PCB Aroclor concentrations were greater than 1 ppm in only two sample locations: ID06E-S02 and S03. Total PAH concentrations were greater than 10 ppm in all samples, which is indicative of industrial areas. Lead concentrations was greater than 1,000 ppm. Copper concentrations were reported at very high levels in all sample locations with levels in S05 reported as high as 36,000 ppm. Based on the elevation and proximity to the creek, it is possible that the COPCs may be present in part due to deposition of contaminated sediment from the OU2 source area.

5.4 Groundwater Data

Monitoring wells in the Creek Corridor on both the west and east side of the creek were sampled to evaluate the potential for natural attenuation as historical trends indicate decreasing concentrations. Phase IB groundwater data confirmed historical data and identified chlorinated solvents in two new wells near or on the Canal Corp. property. The investigation did not identify the source of the TCE or other VOC contamination.

Surface water was sampled to assess potential impacts from VOC-contaminated groundwater. Sample locations were selected in the Creek Corridor to determine if contamination in the groundwater is related to the nearby surface water conditions.

Two staff gauges were also be installed along the western side of the creek to correlate surface water elevations with the groundwater. A round of groundwater elevations and surface water elevations via the staff gauges was collected on the same day to identify possible hydraulic connections.

The groundwater samples were collected from 19 monitoring wells and analyzed for TCL VOCs and parameters to assess natural attenuation during Phase IIB. Historically, the main driver for the investigation of VOC contamination in OU2 groundwater is elevated levels of chlorinated solvents, particularly cis-1,2-dichloroethylene, PCE, and TCE at MW-14, MW-15, and MW-05. Samples were analyzed from all 19 wells to provide data for evaluation of natural attenuation according to Table 2.3 of the EPA guidance, *Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Ground Water* (Wiedemeier 1998; EPA/600/R-98/128) which includes; VOCs, alkalinity, total organic carbon (TOC)/DOC, nitrate/nitrite, sulfate/sulfide, dissolved arsenic/manganese, ferrous iron, chloride, ethane/ethene/methane, carbon dioxide, volatile fatty acids and field parameters (pH, temperature, DO, and ORP).

Table 3-4a presents the VOC and natural attenuation parameters results from the 19 wells sampled during Phase IIB in October 2019 and VOC results from six surface water locations sampled in the Creek Corridor in conjunction with groundwater.

Site-related chlorinated solvent contamination was observed in wells along Eighteen Mile Creek starting from the West Branch of the headwaters north toward the Olcott Street Bridge, including in MW-05, -14, -15, -20, and -23. The chlorinated solvent results from the Phase IIB sampling event are consistent with the historical data. Elevated levels of TCE (11 µg/L), cis-1,2-dichloroethylene (9.2 µg/L), and to a lesser extent PCE (2.2 µg/L), continue to be identified in MW-14. Historically, concentrations appear to have decreased over time. Downgradient of MW-14, cis-1,2-dichloroethylene (8.4 µg/L) was identified at MW-05. MW-15 is located upgradient (southwest) of MW-14 and historically identifies low-level VOC concentrations; and continues to be the only other well to have TCE contamination (0.57 µg/L). Monitoring wells MW-20 and MW-23, located south of MW-14, continue to have site-related chlorinated solvent contamination, specifically the breakdown compounds of TCE, (i.e., cis-1,2-dichloroethylene and vinyl chloride). Cis-1,2-dichloroethylene and vinyl chloride concentrations in MW-20 and MW-23 are 14 µg/L and 2.1 µg/L and 5.2 µg/L and 1.4 µg/L, respectively.

Site-related chlorinated solvent contamination was not detected in any other monitoring wells. Monitoring well MW-19, located north and on the other side of Clinton Street from MW-15, is screened approximately 4 feet below MW-14's screen interval. MW-19 unusual VOC results continue to be identified at this well including high levels of acetone (970 µg/L) and 2-butanone (26 µg/L). Trihalomethanes (e.g., chloroform), often found in potable water, were detected in MW-02 at 2.9 µg/L. Trace levels of carbon disulfide were detected in MW12, MW-13, and MW-18. Upgradient monitoring wells MW-21 and MW-22, located southeast

of MW-14, and MW-16, located southwest of MW-14, continue to have no detectable chlorinated solvent contamination. No site-related chlorinated solvents were detected in all other existing wells that were not sampled during Phase I (wells located on the east side of the Creek Corridor).

Groundwater elevation data assembled for the 19 wells sampled in conjunction with the Phase IIB sampling event and surface water elevation at the two newly installed staff gauges are presented in Table 2-2. The snapshot of water elevations from the 19 Phase IIB wells and two staff gauges were measured on October 9, 2019. Figure 5-4 presents a proposed groundwater contour map generated from overburden, bedrock, and surface water elevation data collected that day. The contours were created using Surfer modelling software. Bedrock and overburden groundwater are understood to be connected hydraulically; therefore, both sets of groundwater elevation data were used to develop the groundwater contour map. However, MW-19 elevation data was omitted from the contour model because incorporating the data causes unusual contours with the model. Groundwater appears to flow toward the creek following surface topography. MW-09 is screened at a higher elevation than surrounding wells, which causes a flat area that modifies the contours and creates a steeper elevation change to the east. Considering the addition of elevations from the historical wells on the eastern side of the creek, groundwater elevations appear to be relatively flat to the east of the creek and flow generally heads in the same direction. A sink was identified at MW-14 where it is apparent that surface water elevation is above the groundwater. MW-14 is screened at an interface interval between bedrock and overburden.

VOCs were not detected in any of the six surface water samples collected in the Creek Corridor. Historically, it appears that the creek is a losing stream beginning from the canal and continuing to the Olcott Street Bridge. A losing stream is when creek surface water is lost to the surrounding formation and contributes to the groundwater. Staff gauge No. 2 (SG-02) is located approximately 50 feet east of MW-14 and surface water elevation was approximately 5 feet higher than groundwater elevation in the well, potentially indicating that surface water may infiltrate into the surrounding groundwater at that location. Further downstream, at staff gauge No. 1 (SG-01), surface water elevation is approximately 1 foot higher than MW-08 located approximately 300 feet south of SG-01. To a lesser extent, it is likely surface water also contributes to the surrounding groundwater.

A complete evaluation of the OU2 groundwater integrating the Phase IIB results with the historical data will be completed as part of the RI.

5.5 Sediment and Toxicity Data

Table 3-5a summarizes the contaminant data for the sediment samples submitted for toxicity testing. PCB Aroclors, PAHs, metals, SVOCs, and chlorinated pesticides were detected in the OU3 samples. The greatest levels of total PCB Aroclors (up to 4.4 mg/kg) were detected in Zone 3. The greatest levels of copper (up to 2,025 mg/kg), lead (up to 4,555 mg/kg), zinc (up to 15,900 mg/kg), and total PAHs (up to 1.4 mg/kg) were detected in Zone 2. Chlorinated pesticides (seven

substances) and SVOCs (three phthalates and two phenols) were detected infrequently and at low levels in the OU3 samples. In the reference area sample (OU3-BG-SD02), PCB Aroclors, PAHs, and chlorinated pesticides were not detected, and levels of copper, lead, zinc, and other metals were substantially lower than in the OU3 samples, as expected.

Toxicity results are presented in detail in Appendix F of the BERA (E & E Forthcoming) and summarized in Section 3.5.5.

5.6 Biota Data

5.6.1 Soil Invertebrate Data

Co-located samples of surface soil and earthworms were collected from eight locations in the OU3 floodplain as described in Sections 2.6.1 and 3.6. The paired soil and earthworm sample dataset is provided in Table 5-1. The concentration range for total PCB Aroclors, chromium, copper, nickel, lead, and vanadium in soil spanned two to three orders of magnitude, as expected based on previous soil sampling results. Correspondingly, the concentration ranges for these analytes in the earthworm composite samples spanned one to two orders of magnitude. For selenium, the range of concentrations in the soil and earthworm samples was only about a factor or two. The highest concentration of total PCB Aroclors in both the soil and earthworms was detected at sample location OU3-R7-T10W-S01. The highest concentration of lead and copper in both the soil and earthworms was detected at sample location OU3-R7-T12E-S03. The lowest concentrations of total PCB Aroclors, lead, and copper in both soil and earthworms were detected at sample location OU3-R6-T09E-S04.

The biota results are evaluated relative to soil concentrations in Appendix G of the BERA (E & E Forthcoming).

5.6.2 Emergent Aquatic Insect Data

In July 2019, emergent aquatic insects were collected for chemical analysis from nine locations in OU3 as described in Sections 2.6.2 and 3.6. The samples were collected from locations that roughly correspond to sediment locations described in Sections 2.5 and 5.5. Table 5-2 presents the emergent aquatic insect sample data (wet weight basis) for contaminants that were found to pose a potential risk to insectivorous wildlife in the OU3 BERA Problem Formulation (E & E 2019d). The concentration range for these analytes in emergent insects generally spanned an order of magnitude, except for vanadium, which was detected only in one sample. Total PCB Aroclors (sum of congeners) ranged between 0.4 and 2.3 mg/kg wet weight. Emergent insect COPC concentrations were generally higher in Zone 3, particularly for PCB Aroclors, lead, and copper. The PCB congener sums for all three samples from Zone 3 were greater than 1.4 mg/kg wet weight.

The emergent aquatic insect results are evaluated relative to sediment concentrations in Appendix H of the BERA (E & E Forthcoming).

6

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Tables

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Table 2-1a Surface Water Sample Collection Summary Phase IIB, Eighteen Mile Creek, OU3

Sample ID	Matrix	Number of Samples	Method of Collection	Date Sampling Completed	Parameters	Comments	CLP High Resolution SDG (Case #: 48339)	LSASD WQ and Metals SDG (Project #: P-1907013)
Phase IIA Surface Water								
Flow Monitoring Event 1 (Water Quality)								
OU3-R4-SW10-EV3-JUL18	SW	1	Direct Fill	7/24/2019	TSS/TDS	Low flow	--	P-1907013
OU3-R6-SW15-EV3-JUL18	SW	1	Kemmerer	7/24/2019	TSS/TDS	Low flow	--	P-1907013
OU3-R7-SW20-EV3-JUL18	SW	1	Direct Fill	7/24/2019	TSS/TDS	Low flow	--	P-1907013
OU3-R7-SW21-EV3-JUL18	SW	1	Direct Fill	7/24/2019	TSS/TDS	Low flow	--	P-1907013
OU3-EB-SW16-EV3-JUL18	SW	1	Direct Fill	7/24/2019	TSS/TDS	Low flow	--	P-1907013
OU3-GC-SW23-EV3-JUL18	SW	1	Direct Fill	7/24/2019	TSS/TDS	Low flow	--	P-1907013
Flow Monitoring Event 2 (Water Quality)								
OU3-R4-SW10-EV4-AUG19	SW	1	Direct Fill	8/28/2019	TSS/TDS	Low flow	--	P-1908085
OU3-R6-SW15-EV4-AUG19	SW	1	Kemmerer	8/28/2019	TSS/TDS	Low flow	--	P-1908085
OU3-R7-SW20-EV4-AUG19	SW	1	Direct Fill	8/28/2019	TSS/TDS	Low flow	--	P-1908085
OU3-R7-SW21-EV4-AUG19	SW	1	Direct Fill	8/28/2019	TSS/TDS	Low flow	--	P-1908085
OU3-EB-SW16-EV4-AUG19	SW	1	Direct Fill	8/28/2019	TSS/TDS	Low flow	--	P-1908085
OU3-GC-SW23-EV4-AUG19	SW	1	Direct Fill	8/28/2019	TSS/TDS	Low flow	--	P-1908085
Phase IIB Surface Water								
High Flow Event 1 (total and dissolved)								
OU3-R1-SW05-EV1-OCT19	SW	1	Direct Fill	10/2/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP34 PBEP49 (FF)	P-1910030
OU3-R4-SW10-EV1-OCT19	SW	1	Direct Fill	10/2/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP34 PBEP49 (FF)	P-1910030
OU3-R6-SW14-EV1-OCT19	SW	1	Kemmerer	10/2/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP34 PBEP49 (FF)	P-1910030
OU3-R7-SW18-EV1-OCT19	SW	1	Kemmerer	10/2/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP34 PBEP49 (FF)	P-1910030
OU3-R7-SW21-EV1-OCT19	SW	1	Direct Fill	10/2/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP34 PBEP49 (FF)	P-1910030

Table 2-1a Surface Water Sample Collection Summary Phase IIB, Eighteen Mile Creek, OU3

Sample ID	Matrix	Number of Samples	Method of Collection	Date Sampling Completed	Parameters	Comments	CLP High Resolution SDG (Case #: 48339)	LSASD WQ and Metals SDG (Project #: P-1907013)
OU3-R7-SW21-EV1-FD-OCT19	SW	1	Direct Fill	10/2/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS	Field duplicate to OU3-R7-SW21-EV1-OCT19	PBEP34 PBEP49 (FF)	P-1910030
OU3-R6-SW15-EV1-OCT19	SW	1	Kemmerer	10/2/2019	TSS/TDS		--	P-1910030
OU3-R7-SW20-EV1-OCT19	SW	1	Direct Fill	10/2/2019	TSS/TDS		--	P-1910030
OU3-EB-SW16-EV1-OCT19	SW	1	Direct Fill	10/2/2019	TSS/TDS		--	P-1910030
OU3-GC-SW23-EV1-OCT19	SW	1	Direct Fill	10/2/2019	TSS/TDS		--	P-1910030
High Flow Event 2 (total and dissolved)								
OU3-R1-SW05-EV2-NOV19	SW	1	Direct Fill	11/1/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP43 PBEP54 (FF)	P-1911020
OU3-R4-SW10-EV2-NOV19	SW	1	Direct Fill	11/1/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP43 PBEP54 (FF)	P-1911020
OU3-R7-SW10-EV2-NOV19-FD	SW	1	Direct Fill	11/1/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS	Field duplicate to OU3-R4-SW10-EV2-NOV19	PBEP43 PBEP54 (FF)	P-1911020
OU3-R6-SW14-EV2-NOV19	SW	1	Kemmerer	11/1/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP43 PBEP54 (FF)	P-1911020
OU3-R7-SW18-EV2-NOV19	SW	1	Kemmerer	11/1/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP43 PBEP54 (FF)	P-1911020
OU3-R7-SW21-EV2-NOV19	SW	1	Direct Fill	11/1/2019	Congeners (T/D), Metals (T/D), DOC, TSS, TDS		PBEP43 PBEP54 (FF)	P-1911020
OU3-R6-SW15-EV2-NOV19	SW	1	Kemmerer	11/1/2019	TSS/TDS		--	P-1911020
OU3-R7-SW20-EV2-NOV19	SW	1	Direct Fill	11/1/2019	TSS/TDS		--	P-1911020
OU3-EB-SW16-EV2-NOV19	SW	1	Direct Fill	11/1/2019	TSS/TDS		--	P-1911020
OU3-GC-SW23-EV2-NOV19	SW	1	Direct Fill	11/1/2019	TSS/TDS		--	P-1911020
Flow Monitoring Event 3 (Water Quality)								
OU3-R4-SW10-EV5-NOV19	SW	1	Direct Fill	11/21/2019	TSS/TDS	Med-flow	--	P-1911043
OU3-R6-SW15-EV5-NOV19	SW	1	Kemmerer	11/21/2019	TSS/TDS	Med-flow	--	P-1911043
OU3-R7-SW20-EV5-NOV19	SW	1	Direct Fill	11/21/2019	TSS/TDS	Med-flow	--	P-1911043
OU3-R7-SW21-EV5-NOV19	SW	1	Direct Fill	11/21/2019	TSS/TDS	Med-flow	--	P-1911043

Table 2-1a Surface Water Sample Collection Summary Phase IIB, Eighteen Mile Creek, OU3

Sample ID	Matrix	Number of Samples	Method of Collection	Date Sampling Completed	Parameters	Comments	CLP High Resolution SDG (Case #: 48339)	LSASD WQ and Metals SDG (Project #: P-1907013)
OU3-EB-SW16-EV5-NOV19	SW	1	Direct Fill	11/21/2019	TSS/TDS	Med-flow	--	P-1911043
OU3-GC-SW23-EV5-NOV19	SW	1	Direct Fill	11/21/2019	TSS/TDS	Med-flow	--	P-1911043
Flow Monitoring Event 4 (Water Quality)								
OU3-R4-SW10-EV6-DEC19	SW	1	Direct Fill	12/9/2019	TSS/TDS	Med-flow	--	P-1912030
OU3-R6-SW15-EV6-DEC19	SW	1	Kemmerer	12/9/2019	TSS/TDS	Med-flow	--	P-1912030
OU3-R7-SW20-EV6-DEC19	SW	1	Direct Fill	12/9/2019	TSS/TDS	Med-flow	--	P-1912030
OU3-R7-SW21-EV6-DEC19	SW	1	Direct Fill	12/9/2019	TSS/TDS	Med-flow	--	P-1912030
OU3-EB-SW16-EV6-DEC19	SW	1	Direct Fill	12/9/2019	TSS/TDS	Med-flow	--	P-1912030
OU3-GC-SW23-EV6-DEC19	SW	1	Direct Fill	12/9/2019	TSS/TDS	Med-flow	--	P-1912030
Field Blanks								
OU3-RB04-03OCT2019	RB			10/3/2019	Congeners (FF), Metals (FF), DOC	Associated with all filtered surface water samples collected throughout high-flow event 1	PBEP49 (FF)	P-1910032
OU3-RB06-03OCT2019	RB			10/3/2019	Congeners (T), Metals (T)	Associated with all total surface water samples collected throughout high-flow event 1	PBEP34	P-1910032
OU3-RB05-01NOV2019	RB			11/1/2019	Congeners (FF), Metals (FF), DOC	Associated with all filtered surface water samples collected throughout high-flow event 2	PBEP54 (FF)	P-1911020

Key:

"-FD" denotes field duplicate sample
 "FF" denotes field filtered sample
 T/D = Total and Dissolved
 SDG = Sample Delivery Group

LSASD = Lab Service and Applied Sciences Division
 CLP = Contracted Laboratory Program
 SW = Surface water
 RB = Rinsate Blank
 WQ = Water Quality

Other

DOC = Dissolved Organic Carbon
 TSS = Total Suspended Solids
 TDS = Total Dissolved Solids

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
Phase IIA Floodplain Soils								
Resampling at Transects for Earthworms								
OU3-R6-T09E-S01-Z[X] (with EW Sample)	SO	Z1, Z2	7/24/2019	SVOCs, ARO, Metals, TOC		BEP25	MBEP25	P-1907071
OU3-R6-T09E-S02-Z[X] (with EW Sample)	SO	Z1, Z2	7/24/2019	SVOCs, ARO, Metals, TOC, Grainsize (Z1 only)		BEP25	MBEP25	P-1907071
OU3-R6-T09E-S03-Z[X] (with EW Sample)	SO	Z1, Z2	7/24/2019	SVOCs, ARO, Metals, TOC		BEP25	MBEP25	P-1907071
OU3-R6-T09E-S04-Z[X] (with EW Sample)	SO	Z1, Z2	7/24/2019	SVOCs, ARO, Metals, TOC		BEP25	MBEP25	P-1907071
OU3-R7-T12E-S01-Z[X] (With EW Sample)	SO	Z1, Z2	7/17/2019	SVOCs, ARO, Metals, TOC		BENY7	MBENY7	P-1907014
OU3-R7-T12E-S02-Z[X] (with EW Sample)	SO	Z1, Z2	7/17/2019	SVOCs, ARO, Metals, TOC		BENY7	MBENY7	P-1907014
OU3-R7-T12E-S03-Z[X] (with EW Sample)	SO	Z1, Z2	7/17/2019	SVOCs, ARO, Metals, TOC		BENY7	MBENY7	P-1907014
OU3-R7-T12E-S04-Z[X] (with EW Sample)	SO	Z1, Z2	7/17/2019	SVOCs, ARO, Metals, TOC		BENY7	MBENY7	P-1907014
OU3-R7-T10W-S01-Z[X] (with EW sample)	SO	Z1, Z2	7/24/2019	SVOCs, ARO, Metals, TOC		BENQ6	MBENQ6	P-1907075
OU3-R7-T12E-FD (with EW Sample)	SO	Z1	7/17/2019	SVOCs, ARO, Metals, TOC	Field Duplicate to OU3-R7-T12E-S03-EW-Z1	BENY7	MBENY7	P-1907014
Additional Sampling near Existing Transects								
OU3-R6-T09E-S05-Z[X]	SO	Not sampled						
OU3-R6-T09E-S06-Z[X]	SO	Z1, Z2	7/25/2019	SVOCs, ARO, Metals		BENQ6	MBENQ6	--
OU3-R6-T09E-S07-Z[X]	SO	Z1, Z2	7/25/2019	SVOCs, ARO, Metals		BENQ8 BENQ6	MBENQ6 MBENQ8	--
OU3-R6-T09E-S08-Z[X]	SO	Z1, Z2	7/25/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z1 only)		BENQ6	MBENQ6	P-1907075
OU3-R6-T09E-S09-Z[X]	Not sampled							
OU3-R6-T09E-S10-Z[X]	SO	Z1, Z2	7/25/2019	SVOCs, ARO, Metals		BENQ6	MBENQ6	--
OU3-R6-T09E2-FD	SO	Z1	7/25/2019	SVOCs, ARO, Metals	Field Duplicate to OU3-R6-T09E-S08-Z1	BENQ6	MBENQ6	--

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
OU3-R7-T12E-S03-Z[X]	SO	Z3	7/17/2019	SVOCs, ARO, Metals, TOC		BENY7	MBENY7	P-1907014
OU3-R7-T12E-S04-Z[X]	SO	Z3	7/17/2019	SVOCs, ARO, Metals, TOC		BENY7	MBENY7	P-1907014
OU3-R7-T12E-S05-Z[X]	SO	Z1, Z2 and Z3	7/16/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R7-T12E-S05-Z[X]	SO	Z1	7/17/2019	TOC, Grainsize				P-1907014
OU3-R7-T12E-S06-Z[X]	SO	Z1, Z2	7/15/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R7-T12E-S06-Z[X]	SO	Z3	7/16/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R7-T12E-S07-Z[X]	SO	Z1, Z2 and Z3	7/16/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R7-T12E-S08-Z[X]	SO	Z1, Z2 and Z3	7/16/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R7-T12E-S08-Z[X]	SO	Z1 and Z3	7/17/2019	TOC, Grainsize		BENP0	MBENP0	--
OU3-R5-T05E-S05-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z1 only)		BENW1	MBENW1	P-1908020
OU3-R5-T05E-S06-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals		BENW1	MBENW1	--
OU3-R5-T05E-S07-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals		BENW1	MBENW1	--
OU3-R5-T05E-S08-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals		BENW1	MBENW1	--
OU3-R6-T06E-S05-Z[X]	SO	Z1, Z2	7/26/2019	SVOCs, ARO, Metals TOC and Grainsize (Z1 only)		BENQ8	MBENQ8	P-1907075
OU3-R6-T06E-S06-Z[X]	SO	Z1, Z2	7/26/2019	SVOCs, ARO, Metals		BENQ8	MBENQ8	--
OU3-R6-T06E-S07-Z[X]	SO	Z1, Z2	7/26/2019	SVOCs, ARO, Metals Grainsize (Z2 only)		BENQ8 BENW1	MBENQ8 MBENW1	P-1907075
OU3-R6-T06E-S08-Z[X]	SO	Z1, Z2	7/26/2019	SVOCs, ARO, Metals		BENQ6	MBENQ6	--
OU3-R6-T06E-FD	SO	Z1	7/26/2019	SVOCs, ARO, Metals	Field Duplicate to OU3-R6-T06E-S06-Z1	BENQ8	MBENQ8	--
OU3-R6-T08E-S05-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals		BENW1	MBENW1	--
OU3-R6-T08E-S06-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BENW1	MBENW1	P-1908020
OU3-R6-T08E-S07-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z1 only)		BENW1	MBENW1	P-1908020

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
OU3-R6-T08E-S08-Z[X]	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BENW1	MBENW1	P-1908020
OU3-R6-T08E-FD	SO	Z1, Z2	7/31/2019	SVOCs, ARO, Metals	Field Duplicate to OU3-R6-T08E-S07-Z2	BENW1	MBENW1	--
OU3-R7-T11W-S06-Z[X]	SO	Z1, Z2 and Z3	7/26/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z1 and Z3 only)		BENQ8	MBENQ8	P-1907075
OU3-R7-T11W-S07-Z[X]	SO	Z1, Z2 and Z3	7/26/2019	SVOCs, ARO, Metals		BENQ8	MBENQ8	--
OU3-R7-T11W-S08-Z[X]	SO	Z1, Z2 and Z3	7/26/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 and Z3 only)		BENQ8	MBENQ8	P-1907075
OU3-R7-T11W-S09-Z[X]	SO	Z1, Z2 and Z3	7/26/2019	SVOCs, ARO, Metals		BENQ8	MBENQ8	--
OU3-R7-T11W-FD	SO	Z1	7/26/2019	SVOCs, ARO, Metals	Field Duplicate to OU3-R7-T11W-S08-Z1	BENQ8	MBENQ8	--
Sampling at New Transect Locations								
OU3-R7-T14E-S01-Z[X]	SO	Z1, Z2 and Z3	7/25/2019	SVOCs, ARO, Metals		BENQ6	MBENQ6	--
OU3-R7-T14E-S02-Z[X]	SO	Z1, Z2 and Z3	7/25/2019	SVOCs, ARO, Metals		BENQ6	MBENQ6	--
OU3-R7-T14E-S03-Z[X]	SO	Z1, Z2 and Z3	7/25/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z3 only)		BEP25	MBEP25	P-1907075
OU3-R7-T14E-S04-Z[X]	SO	Z1, Z2 and Z3	7/25/2019	SVOCs, ARO, Metals		BEP25 BENQ6	MBENQ6 MBEP25	--
OU3-R7-T14E-S05-Z[X]	SO	Z1, Z2 and Z3	7/16/2019	SVOCs, ARO, Metals, TOC and Grainsize		BENY7	MBENY7	P-1907014
OU3-R7-T14E-FD	SO	Z1	7/16/2019	SVOCs, ARO, Metals	Field Duplicate to OU3-R7-T14E-S05-Z1	BENY7	MBENY7	P-1907014

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
Phase IIA Industrial Soil								
Resampling at location ID06								
OU3-R8-ID06E-S01-Z3 (lower depth only)	SO	Z2 only	7/15/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R8-ID06E-S02-Z[X]	SO	Z1	7/15/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R8-ID06E-S03-Z[X]	SO	Z1 and Z2	7/15/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R8-ID06E-S04-Z[X]	No soil, no sample collected							
OU3-R8-ID06E-S05-Z[X]	SO	Z1 and Z2	7/15/2019	SVOCs, ARO, Metals		BENP0	MBENP0	--
OU3-R8-ID06E-FD	SO	Z2	7/15/2019	SVOCs, ARO, Metals	Field Duplicate to OU3-R8-ID06E2-S05-Z2	BENP0	MBENP0	--
Phase IIB Floodplain Soils								
Sampling at 10 New Transect Locations								
OU3-R7-T15E-S01-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPJ5	MBEPJ5	P-1910036
OU3-R7-T15E-S02-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals		BEPJ5	MBEPJ5	--
OU3-R7-T15E-S02-FD	SO	Z2	10/3/2019	SVOCs, ARO, Metals	Field duplicate to OU3-R7-T15EE-S02-Z2	BEPJ5	MBEPJ5	--
OU3-R7-T15E-S03-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals		BEPJ5	MBEPJ5	--
OU3-R7-T15E-S04-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z1 only)		BEPJ5	MBEPJ5	P-1910036
OU3-R7-T15E-S05-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals		BEPJ5	MBEPJ5	--
OU3-R7-T16E-S01-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEP83	MBEP83	P-1910028
OU3-R7-T16E-S02-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP83	MBEP83	--
OU3-R7-T16E-S03-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP83	MBEP83	--
OU3-R7-T16E-S04-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP83	MBEP83	--
OU3-R7-T16E-S05-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP83	MBEP83	--
OU3-R7-T16E-S06-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP93	MBEP93	--
OU3-R7-T17W-S01-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEP93	MBEP93	P-1910028
OU3-R7-T17W-S02-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP93	MBEP93	--
OU3-R7-T17W-S03-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP93	MBEP93	--

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
OU3-R7-T17W-S04-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BEP93	MBEP93	P-1910028
OU3-R7-T17W-S04-FD	SO	Z1	9/30/2019	SVOCs, ARO, Metals	Field duplicate to OU3-R7-T17W-S04-Z1	BEP93	MBEP93	--
OU3-R7-T17W-S05-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP93	MBEP93	--
OU3-R7-T17W-S06-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP93	MBEP93	--
OU3-R7-T18W-S01-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPD6	MBEPD6	P-1910036
OU3-R7-T18W-S02-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T18W-S03-Z[X]	SO	Z1	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T18W-S03-Z[X]	SO	Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T18W-S04-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BEPD6	MBEPD6	--
OU3-R7-T18W-S05-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T18W-S06-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T19W-S01-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPD6	MBEPD6	--
OU3-R7-T19W-S01-FD	SO	Z2	10/4/2019	SVOCs, ARO, Metals, TOC and Grainsize	Field duplicate to OU3-R7-T19W-S01-Z2	BEPD6	MBEPD6	--
OU3-R7-T19W-S02-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T19W-S03-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T19W-S04-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T19W-S05-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T19W-S06-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T19W-S07-Z[X]	SO	Z1, Z2	10/4/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BEPD6	MBEPD6	--
OU3-R7-T20W-S01-Z[X]	SO	Z1, Z2	10/1/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPD6	MBEPD6	--
OU3-R7-T20W-S02-Z[X]	SO	Z1, Z2	10/1/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T20W-S03-Z[X]	SO	Z1, Z2	10/1/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T20W-S04-Z[X]	SO	Z1	10/1/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T20W-S04-Z[X]	SO	Z2	10/1/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T20W-S05-Z[X]	SO	Z1	10/1/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
OU3-R7-T20W-S05-Z[X]	SO	Z2	10/1/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPD0	MBEPC6	P-1910028
OU3-R7-T21E-S01-Z[X]	SO	Z1, Z2 and Z3	10/3/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPD6	MBEPD6	P-1910031
OU3-R7-T21E-S02-Z[X]	SO	Z1, Z2 and Z3	10/3/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z3 only)		BEPD6	MBEPD6	P-1910031
OU3-R7-T21E-S02-FD	SO	Z1, Z2 and Z3	10/3/2019	SVOCs, ARO, Metals	Field duplicate to OU3-R7-T21E-S02-Z2	BEPD6	MBEPD6	--
OU3-R7-T21E-S03-Z[X]	SO	Z1, Z2 and Z3	10/3/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T22E-S01-Z[X]	SO	Z1, Z2	10/1/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPD0	MBEP93	P-1910028
OU3-R7-T22E-S02-Z[X]	SO	Z1, Z2	10/1/2019	SVOCs, ARO, Metals		BEPD0	MBEPC6	--
OU3-R7-T22E-S03-Z[X]	SO	Z1, Z2	10/1/2019	SVOCs, ARO, Metals		BEPD0	MBEPC6	--
OU3-R7-T22E-S04-Z[X]	SO	Z1, Z2	10/1/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z1 only)		BEPD0	MBEPC6	P-1910028
OU3-R7-T22E-S05-Z[X]	collected, not analyzed; see DASR							
OU3-R7-T22E-S06-Z[X]	not collected; see DASR							
OU3-R7-T23E-S01-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEP83	MBEP83	P-1910028
OU3-R7-T23E-S02-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BEP83	MBEP83	P-1910028
OU3-R7-T23E-S03-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP83	MBEP83	--
OU3-R7-T23E-S03-FD	SO	Z2	9/30/2019	SVOCs, ARO, Metals	Field duplicate to OU3-R7-T23E-S03-Z2	BEP83	MBEP83	--
OU3-R7-T23E-S04-Z[X]	SO	Z1, Z2	9/30/2019	SVOCs, ARO, Metals		BEP83	MBEP83	--
OU3-R7-T23E-S05-Z[X]	SO	Z1	9/30/2019	SVOCs, ARO, Metals		BEP83	MBEP83	--
OU3-R7-T23E-S05-Z[X]	SO	Z2	9/30/2019	SVOCs, ARO, Metals		BEP93	MBEP93	--
OU3-R7-T24E-S01-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPJ5	MBEPJ5	P-1910031
OU3-R7-T24E-S02-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals		BEPJ5	MBEPJ5	--
OU3-R7-T24E-S03-Z[X]	SO	Z1	10/3/2019	SVOCs, ARO, Metals		BEPJ5	MBEPJ5	--
OU3-R7-T24E-S03-Z[X]	SO	Z2	10/3/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
OU3-R7-T24E-S04-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BEPD6	MBEPD6	P-1910031
OU3-R7-T24E-S05-Z[X]	SO	Z1, Z2	10/3/2019	SVOCs, ARO, Metals		BEPD6	MBEPD6	--
OU3-R7-T25E-S01-Z[X]	SO	Z1, Z2	10/2/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPD0	MBEPC6	P-1910031
OU3-R7-T25E-S02-Z[X]	SO	Z1, Z2	10/2/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z1 only)		BEPD0	MBEPC6	P-1910031
OU3-R7-T25E-S03-Z[X]	SO	Z1, Z2	10/2/2019	SVOCs, ARO, Metals		BEPD0	MBEPC6	--
OU3-R7-T25E-S04-Z[X]	SO	Z1, Z2	10/2/2019	SVOCs, ARO, Metals, TOC and Grainsize (Z2 only)		BEPJ5	MBEPJ5	P-1910031
OU3-R7-T25E-S05-Z[X]	SO	Z1, Z2	10/2/2019	SVOCs, ARO, Metals		BEPJ5	MBEPJ5	--
Additional Sampling near Existing Transects								
OU3-R7-T12E-S09-Z[X]	SO	Z1, Z2	10/7/2019	SVOCs, ARO, Metals		BEPC2	MBEPC2	--
OU3-R7-T12E-S10-Z[X]	SO	Z1, Z2	10/7/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPC2	MBEPC2	P-1910036
OU3-R7-T12E-S11-Z[X]	SO	Z1, Z2	10/7/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPC2	MBEPC2	P-1910036
OU3-R7-T12E-S12-Z[X]	SO	Z1, Z2	10/7/2019	SVOCs, ARO, Metals		BEPC2	MBEPC2	--
OU3-R7-T12E-S12-FD	SO	Z2	10/7/2019	SVOCs, ARO, Metals	Field duplicate to OU3-R7-T12E-S12-Z2	BEPC2	MBEPC2	--
OU3-R7-T12E-S13-Z[X]	SO	Z1, Z2	10/7/2019	SVOCs, ARO, Metals, TOC and Grainsize		BEPC2	MBEPC2	P-1910036
OU3-R7-T12E-S14-Z[X]	SO	Z1, Z2	10/7/2019	SVOCs, ARO, Metals		BEPC2	MBEPC2	--

Table 2-1b Soil Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Number of Samples [X]	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD SQ Parameters SDG (Project #: P-1907014)
Field Blanks⁽¹⁾								
OU3-RB01-16JUL19				Collected from trowel; not analyzed				
OU3-RB02-17JUL19	RB		7/17/2019	SVOCs, ARO, Metals, TOC	Collected from hand auger,. Associated with all soil samples collected with hand auger			P-1907012
OU3-RB03-18JUL19	RB		7/18/2019	SVOCs, ARO, Metals, TOC	Collected from split spoon. Associated with all soil samples collected with split spoon			P-1907061
OU3-RB01-01OCT19	RB		10/1/2019	SVOCs, ARO, Metals	Collected from trowel. Associated with all soil samples collected with trowel.			P-1910026

Key:

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

SDG = Sample Delivery Group

LSASD = Lab Service and Applied Sciences Division

CLP = Contracted Laboratory Program

SO = Soil

RB = Rinsate Blank

SQ = Soil Quality

Other

ARO = PCB Aroclors

TOC = Total Organic Carbon

SVOC = Semivolatile Organic Compounds

Note:

(1) Associated with LSASD Project #: P-1907012

Table 2-1c Ground Water Sample Collection Summary, Eighteen Mile Creek, Creek Corridor, New York

Sample ID	Matrix	Number of Samples	Date Sampling Completed	Parameters	Sampling Method	Comments	LSASD NA Parameters SDG (Project #: P-1907012)	Pace Analytical Fe II SDG	Pace Analytical VFA - CO ² SDG	SiREM DHC SDG
Phase IIB Groundwater and Surface Water in Creek Corridor										
Existing Wells East (not sampled 2018)										
OU2-MW01-OCT19	GW	1	10/3/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Peristaltic Pump		P-1910029	31643	31645	--
OU2-MW02-OCT19	GW	1	10/3/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Bladder Pump		P-1910029	31643	31645	--
OU2-MW04-OCT19	GW	1	10/3/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Peristaltic Pump		P-1910029	31643	31645	--
OU2-MW06-OCT19	GW	1	10/3/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Peristaltic Pump		P-1910029	31643	31645	--
OU2-MW08-OCT19	GW	1	10/2/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Peristaltic Pump		P-1910027	31628	31645	--
OU2-MW10-[date]	not collected; see DASR									
OU2-MW11-OCT19	GW	1	10/1/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Peristaltic Pump		P-1910026	31640	31645	--
OU2-MW12-OCT19	GW	1	10/4/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Grab - Bladder Pump		P-1910033	31656	31658	--
OU2-MW13-OCT19	GW	1	10/4/2019	VOCs, Metals (D), Anions, Alkalinity, Sulfide, VFA, CO ₂	Grab - Bladder Pump		P-1910033	--	31658	--
Existing Wells West (sampled 2018)										
OU2-MW05-OCT19	GW	1	10/1/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II, DHC	Low Flow - Peristaltic Pump		P-1910026	31640	31645	S-5523
OU2-MW09-OCT19	GW	1	10/4/2019	VOCs, Metals (D), Anions, Alkalinity, Sulfide, VFA, CO ₂	Grab - Bladder Pump		P-1910033	--	31658	--
OU2-MW14-SEP19	GW	1	9/30/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II, DHC	Low Flow - Bladder Pump		P-1910025	31627	31645	S-5523
OU2-MW15-SEP19 OU2-MW15-OCT19	GW	1	9/30/2019 10/1/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, VFA, CO ₂ , Fe II, DHC	Low Flow - Peristaltic Pump	TOC/DOC Sampled 10/1	P-1910025 P-1910026	31627	31645	S-5523

Table 2-1c Ground Water Sample Collection Summary, Eighteen Mile Creek, Creek Corridor, New York

Sample ID	Matrix	Number of Samples	Date Sampling Completed	Parameters	Sampling Method	Comments	LSASD NA Parameters SDG (Project #: P-1907012)	Pace Analytical Fe II SDG	Pace Analytical VFA - CO ² SDG	SiREM DHC SDG
OU2-MW16-OCT19	GW	1	10/2/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Peristaltic Pump		P-1910027	31628	31645	--
OU2-MW-OCT19-FD	GW	1	10/2/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Bladder Pump	Field duplicate to OU2-MW16-OCT19	P-1910027	31628	31645	--
OU2-MW18-OCT19	GW	1	10/3/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Bladder Pump		P-1910029	31643	31645	--
OU2-MW19-OCT19	GW	1	10/4/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Grab - Bladder Pump		P-1910033	31656	31658	--
OU2-MW20-SEP19 OU2-MW20-OCT19	GW	1	9/30/2019 10/1/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Bladder Pump	DHC sampled 10/1	P-1910025	31627	31645	S-5523
OU2-MW21-OCT19	GW	1	10/2/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Bladder Pump		P-1910027	31628	31645	--
OU2-MW22-OCT19	GW	1	10/2/2019	VOCs, MEE, Metals (D), Anions, Alkalinity, Sulfide, TOC/DOC, VFA, CO ₂ , Fe II	Low Flow - Bladder Pump		P-1910027	31628	31645	--
OU2-MW23-SEP19 OU2-MW23-OCT19	GW	1	9/30/2019 10/4/2019	VOCs, MEE, Metals (D), Sulfide, TOC/DOC, VFA, CO ₂ , Fe II, DHC	Low Flow - Bladder Pump	Anions/Alkalinity sampled 10/4	P-1910025 P-1910033	31627	31645	S-5523
Surface Water New Locations										
OU2-SW04-OCT19	SW	1	10/4/2019	VOCs	Kemmerer		P-1910033	--	--	--
OU2-SW05-OCT19	SW	1	10/4/2019	VOCs	Kemmerer		P-1910033	--	--	--
OU2-SW-OCT19-FD	SW	1	10/4/2019	VOCs	Kemmerer	Field duplicate to OU2-SW05-OCT19	P-1910033	--	--	--
OU2-SW06-OCT19	SW	1	10/4/2019	VOCs	Kemmerer		P-1910033	--	--	--
OU2-SW07-OCT19	SW	1	10/4/2019	VOCs	Direct Fill		P-1910033	--	--	--
OU2-SW08-OCT19	SW	1	10/4/2019	VOCs	Direct Fill		P-1910033	--	--	--

Table 2-1c Ground Water Sample Collection Summary, Eighteen Mile Creek, Creek Corridor, New York

Sample ID	Matrix	Number of Samples	Date Sampling Completed	Parameters	Sampling Method	Comments	LSASD NA Parameters SDG (Project #: P-1907012)	Pace Analytical Fe II SDG	Pace Analytical VFA - CO ² SDG	SiREM DHC SDG
Groundwater IDW										
OU2-IDW-01-OCT19	IDW	1	10/7/2019	VOCs, SVOCs, PCB Aroclors, Metals ICP-AES			P-1907013	--	--	--
Field Blanks										
OU2-TB01-30SEP2019	TB		9/30/2019	VOCs		Associated with samples MW23, MW14, MW15, and MW20	P-1910025	--	--	--
OU2-TB02-30SEP2019	TB		9/30/2019	VOCs		Associated with samples MW05 and MW11	P-1910026	--	--	--
OU2-TB03-02OCT2019	TB		10/2/2019	VOCs		Associated with samples MW21 and MW16	P-1910027	--	--	--
OU2-TB04-03OCT2019	TB		10/3/2019	VOCs		Associated with samples MW06, MW04, MW02, MW18 and MW01	P-1910029	--	--	--
OU2-TB05-02OCT2019	TB		10/2/2019	VOCs		Associated with samples MW08 and MW22	P-1910027	--	--	--
OU2-TB06-04OCT2019	TB		10/4/2019	VOCs		Associated with all surface water samples and samples MW09, MW13, MW12 and MW19.	P-1910033	--	--	--
OU2-RB01-03OCT2019	RB		10/3/2019	VOCs, Metals (D)		Associated with all groundwater samples	P-1910029	--	--	--

Key:

"-FD" denotes field duplicate sample

SDG = Sample Delivery Group

LSASD = Lab Service and Applied Sciences Division

CLP = Contracted Laboratory Program

GW = Groundwater

SW = Surface water

RB = Rinsate Blank

TB = Trip Blank

Other

Fe II = Ferrous iron

Anions = Chloride, sulfate, nitrate/nitrite

TOC = Total Organic Carbon

MEE = Dissolved Gases (Methane, Ethene, Ethane)

CO₂ = Carbon Dioxide

DHC = Dehalococoides

DOC = Dissolved Organic Carbon

VFA = Volatile Fatty Acids

VOC = Volatile Organic Compounds

NA = Natural Attenuation

Table 2-1d Sediment Sample Collection Summary, Eighteen Mile Creek, OU3, New York

Sample ID	Matrix	Actual Number of Samples	Date Sampling Completed	Parameters	Comments	CLP Organics SDG (Case #: 48326)	CLP Inorganics SDG (Case #: 48326)	LSASD Geotechnical SDG (Project #: P-1907071)	Aquatec Environmental Toxicity SDG	Pace Analytical AVS/SEM SDG
Phase IIA Sediment Toxicity and Chemistry										
OU3-P1-SD01-JUL19	SE	1	7/18/2019 7/24/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity	Bulk density & AVS/SEM sampled 7/24	BEP22 BENY7	MBENY7	P-1907071	15613	40191869
OU3-P1-SD02-JUL19	SE	1	7/18/2019 7/24/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity	AVS/SEM sampled 7/24	BEP22 BENY7	MBENY7	P-1907071	15613	40191869
OU3-P1-SD03-JUL19	SE	1	7/18/2019 7/24/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity	AVS/SEM sampled 7/24	BEP22 BENY7	MBENY7	P-1907071	15613	40191869
OU3-P2-SD01-JUL19	SE	1	7/22/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity		BEP25 BEP22	MBEP25	P-1907071	15613	40191869
OU3-P2-SD02-JUL19	SE	1	7/22/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity		BEP25 BEP22	MBEP25	P-1907071	15613	40191869
OU3-P2-SD03-JUL19	SE	1	7/23/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity		BEP25 BEP22	MBEP25	P-1907071	15613	40191869
OU3-P3-SD01-JUL19	SE	1	7/23/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity		BEP25 BEP22	MBEP25	P-1907071	15613	40191869
OU3-P3-SD02-JUL19	SE	1	7/22/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity		BEP25 BEP22	MBEP25	P-1907071	15613	40191869
OU3-P3-SD03-JUL19	SE	1	7/23/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech, Toxicity		BEP25 BEP22	MBEP25	P-1907071	15613	40191869
OU3-P2-SD-FD-JUL19	SE	1	7/22/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Geotech	Field Duplicate to OU3-P2-SD02	BEP25 BEP22	MBEP25	P-1907071	15613	40191869
Sediment Background Samples										
OU3-BG-SD01-JUL19	No sediment, not collected									
OU3-BG-SD02-JUL19	SE	1	7/19/2019	SVOCs, ARO, Pest, Metals, TOC, Grainsize, Toxicity		BEP22 BENY7	MBENY7	P-1907071	15613	40191869

Key:

"-FD" denotes field duplicate sample

SDG = Sample Delivery Group

LSASD = Lab Service and Applied Sciences Division

CLP = Contracted Laboratory Program

SE = Sediment

Other

ARO = PCB Aroclors

TOC = Total Organic Carbon

Pest = Pesticides

SVOC = Semivolatile Organic Compounds

AVS/SEM = Acid Volatile Sulfide / Simultaneously Extracted Metals

Table 2-1e Soil Invertebrates/Emergent Aquatic Insects Sample Collection Summary, Eighteen Mile Creek OU3, New York

Sample ID	Matrix	Actual Number of Samples	Date Sampling Completed	Parameters	Comments	Pace Analytical SDG
Phase IIA Tissue (Soil Invertebrates Existing Locations)						
OU3-R6-T09E-S01-EW	TA	1	7/22 and 7/25/2019	PCB Cong, Metals (Chromium (Cr), Copper (Cu), Lead (Pb), Nickel (Ni), Selenium (Se), Vanadium (V)), % lipids		40192118
OU3-R6-T09E-S02-EW	TA	1	7/24/2019			40192118
OU3-R6-T09E-S03-EW	TA	1	7/24/2019			40192118
OU3-R6-T09E-S04-EW	TA	1	7/24/2019			40192118
OU3-R7-T12E-S01-EW	TA	1	7/17/2019			40192118
OU3-R7-T12E-S02-EW	TA	1	7/17/2019			40192118
OU3-R7-T12E-S03-EW	TA	0.5	7/17 and 7/22/2019			40192118
OU3-R7-T12E-S04-EW	No worms, no sample collected					
OU3-R7-T10W-S01-EW	TA	1	7/22 and 7/25/2019	PCB Cong, Metals (Cr, Cu, Pb, Ni, Se, V), % lipids		40192118
Phase IIA Tissue (Emergent Aquatic Insect SE Location)						
OU3-P1-EA01-JUL19	TA	1	7/24 and 7/25/2019	PCB Cong, Metals (Barium (Ba), Copper (Cu), Lead (Pb), Selenium (Se), Vanadium (V)), % lipids	Samples to be composited as OU3-P1-EA01/EA02-JUL19	40192118
OU3-P1-EA02-JUL19	TA	1	7/24 and 7/25/2019			40192118
OU3-P1-EA03-JUL19	TA	1	7/24 and 7/25/2019	PCB Cong, PAHs, Metals (Ba, Cu, Pb, Se, V)		40192118
OU3-P2-EA01-JUL19	TA	1	7/16 and 7/17/2019	PCB Cong, PAHs, Metals (Ba, Cu, Pb, Se, V), %lipids, % moisture		40192118
OU3-P2-EA02-JUL19	TA	1	7/16 and 7/17/2019			40192118
OU3-P2-EA03-JUL19	TA	1	7/16 and 7/17/2019			40192118
OU3-P3-EA01-JUL19	TA	1	7/19 and 7/20/2019			40192118

Table 2-1e Soil Invertebrates/Emergent Aquatic Insects Sample Collection Summary, Eighteen Mile Creek OU3, New York

Sample ID	Matrix	Actual Number of Samples	Date Sampling Completed	Parameters	Comments	Pace Analytical SDG
OU3-P3-EA02-JUL19	TA	1	7/19 and 7/20/2019			40192118
OU3-P3-EA03-JUL19	TA	1	7/19, 7/20, and 7/22/2019			40192118

Key:

SDG = Sample Delivery Group

TA = Tissue

Other

PCB = Polychlorinated biphenyl

PAH = Polycyclic aromatic hydrocarbon

Table 2-2 Groundwater Elevation Data, Creek Corridor Wells, Eighteen Mile Creek, OU3

Monitoring Well ID	Inner Casing Elevation (ft AMSL)	July 2007		November 2007		December 2014		May 2015		October 2018		January 2019		October 2019	
		Water Level (ft BTOIC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOIC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOIC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOIC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOIC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOIC)	Water Level Elevation (ft AMSL)	Water Level (ft BTOIC)	Water Level Elevation (ft AMSL)
MW-01	480.45	14.91	465.54	15.00	465.45	NM	NM	NM	NM	NM	NM	NM	NM	14.85	465.60
MW-02	488.42	17.20	471.22	17.95	470.47	NM	NM	NM	NM	NM	NM	NM	NM	16.72	471.70
MW-04	490.08	19.30	470.78	20.00	470.08	NM	NM	NM	NM	NM	NM	NM	NM	18.89	471.19
MW-05	481.14	14.74	466.40	13.80	467.34	12.15	468.99	13.10	468.04	13.50	467.64	13.25	467.89	13.36	467.78
MW-06	488.42	15.90	472.52	16.00	472.42	NM	NM	NM	NM	NM	NM	NM	NM	5.74	482.68
MW-08	491.40	11.54	479.86	11.58	479.82	NM	NM	NM	NM	NM	NM	NM	NM	10.53	480.87
MW-09	501.43	12.90	488.53	12.93	488.50	11.00	490.43	NM	NM	10.93	490.50	10.53	490.90	10.39	491.04
MW-10	493.77	12.08	481.69	12.35	481.42	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW-11	492.97	7.20	485.77	9.51	483.46	NM	NM	NM	NM	NM	NM	NM	NM	8.71	484.26
MW-12	495.06	12.37	482.69	13.10	481.96	NM	NM	NM	NM	NM	NM	NM	NM	11.95	483.11
MW-13	496.07	7.33	488.74	8.05	488.02	NM	NM	NM	NM	NM	NM	NM	NM	9.02	487.05
MW-14	496.15	18.10	478.05	17.30	478.85	NM	NM	16.60	479.55	19.90	476.25	20.42	475.73	19.75	476.40
MW-15	506.85	20.00	486.85	19.97	486.88	15.30	480.85	19.00	487.85	19.43	487.42	19.21	487.64	19.34	487.51
MW-16	520.75	18.03	502.72	18.80	501.95	18.80	488.05	16.22	504.53	17.33	503.42	15.46	505.29	5.54	515.21
MW-17	516.88	15.12	501.76	25.02	491.86	16.11	504.64	NM	NM	NM	NM	NM	NM	NM	NM
MW-18	507.71	NM	NM	NM	NM	19.05	488.66	24.05	456.39	23.67	484.04	NM	NM	22.71	485.00
MW-19	508.20	NM	NM	NM	NM	NM	NM	NM	NM	28.58	479.62	36.38	471.82	29.88	478.32
MW-20	516.38	NM	NM	NM	NM	NM	NM	NM	NM	34.44	481.94	34.85	481.53	34.15	482.23
MW-21	513.97	NM	NM	NM	NM	NM	NM	NM	NM	32.85	481.12	33.52	480.45	32.60	481.37
MW-22	515.45	NM	NM	NM	NM	NM	NM	NM	NM	33.52	481.93	34.02	481.43	33.38	482.07
MW-23	515.19	NM	NM	NM	NM	NM	NM	NM	NM	32.70	482.49	33.33	481.86	32.36	482.83
SG-01	483.34	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1.50	481.84
SG-02	483.58	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	1.42	482.16

Key:
AMSL = Above Mean Sea Level.
BTOIC = Below top of inner Casing.
ft = Feet.
NM = Not measured.

Table 2-3 Phase II (July 2019) Emergent Aquatic Insect Composite Sample Weights, Eighteen Mile Creek, OU3, New York

Sample Location	Sample Date (2019)	Trap Type and Sample Weight (grams wet)					Parameters Analyzed				
		Malaise Trap	Light Trap 1	Light Trap 2	Sweep Net	Combined Weight	PCBs	PAHs	Metals	Lipids	Moisture
Zone 1 -- Downstream from Burt Dam											
OU3-P1-EA01*	7/24 and 7/25	--	3	2	--	5	X	--	X	--	X
OU3-P1-EA02*	7/24 and 7/25	--	< 1	17	< 1	17					
OU3-P1-EA03	7/24 and 7/25	--	9	9	4	22	X	--	X	--	--
Zone 2 -- Between Burt Dam and Newfane Dam											
OU3-P2-EA01	7/16 and 7/17	18	77	32	--	127	X	X	X	X	X
OU3-P2-EA02	7/16 and 7/17	37	66	100	--	203	X	X	X	X	X
OU3-P2-EA03	7/16 and 7/17	42	24	235	--	301	X	X	X	X	X
Zone 3 -- Upstream from Newfane Dam											
OU3-P3-EA01	7/19 and 7/20	19	32	30		81	X	X	X	X	X
OU3-P3-EA02	7/19 and 7/20	--	46	30	2	78	X	X	X	X	X
OU3-P3-EA03	7/19 and 7/20	--	7	36	12	55	X	X	X	X	X

Key:

-- = trap not used or parameter not analyzed

OU3 = Operable Unit 3

X = parameter analyzed

Note:

* Zone 1 samples EA1 and EA2 combined for analysis because of small sample mass.

Table 3-1a Summary for Positive Analytical Results for Phase II (October/November 2019) Surface Water High Flow Events, Eighteen Mile Creek OU3, New York

Analytes	Reach No.:	01	01	01	01	04	04	04	04	04	04
	Zone No.:	Zone 1	Zone 1	Zone 1	Zone 1	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2
	Sample ID:	OU3-R1-SW05-EV1-FF-OCT19	OU3-R1-SW05-EV1-OCT19	OU3-R1-SW05-EV2-FF-NOV19	OU3-R1-SW05-EV2-NOV19	OU3-R4-SW10-EV1-FF-OCT19	OU3-R4-SW10-EV1-OCT19	OU3-R4-SW10-EV2-FD-NOV19	OU3-R4-SW10-EV2-FF-FD-NOV19	OU3-R4-SW10-EV2-FF-NOV19	OU3-R4-SW10-EV2-NOV19
	Sample Date:	10/2/2019	10/2/2019	11/1/2019	11/1/2019	10/2/2019	10/2/2019	11/1/2019	11/1/2019	11/1/2019	11/1/2019
Metals (ug/L)											
Aluminum		20 U	44 U	20 U	370	20 U	720	2100	20 U	20 U	2000
Arsenic		1 U	1 U	1 U	1 U	1 U	1.1	1.9	1.1	1.1	1.8
Barium		32	30	1 U	42 J-	33	37	53	33 U	36 U	53
Calcium		67000	65000	100 U	69000	63000	59000	48000	49000 U	48000 U	49000
Chromium, Total		1 U	1 U	1 U	1 U	1 U	1.8	3.9	1 U	1 U	3.7
Cobalt		1 U	1 U	1 U	1 U	1 U	1 U	1.2	1 U	1 U	1.1
Copper		1.3	1.8	1 U	3.4	2.6	4.9	11	3.3 U	3.3 U	10
Iron		20 U	85	20 U	640	32	1100	3000	150	170	2900
Lead		1 U	1 U	1 U	1.7	1 U	5.3	9.5	1 U	1 U	9
Magnesium		12000	12000	100 U	15000	12000	11000	11000	10000	11000	11000
Manganese		12	25	1 U	75	25	60	120	66 U	65 U	130
Nickel		1 U	1	1 U	1.5	1.1	2.1	3.9	1.1 U	1.1 U	3.8
Potassium		3500	3400	100 U	5600	4400	4300	8700	8600 U	8500 U	8800
Sodium		51000	48000	100 U	54000	51000	48000	31000	32000 U	35000 U	32000
Vanadium		1 U	1 U	1 U	1.2	1 U	1.8	4	1 U	1 U	3.9
Zinc		2.6	4.6	9.7 U	7	7	78	30	3.2 U	3.4 U	28
Mercury (ug/L)											
None Detected											
PCB Congeners (ng/L)											
Total PCB Congener ⁽¹⁾		3.6 J	46 J	6 J	48 J	0.643 J	114 J	150 J	NR	5.1 J ⁽²⁾	160 J

Key:

- J = Estimated value
- J- = Estimated value with low bias
- U = Not detected (quantitation limit shown)
- DU = Data Unavailable
- NR= Data Not Reported

Notes

(1) Sum = Total of detect values in the analyte group.

Other

- µg/L = Micrograms per liter
- ng/L = Nanograms per liter
- = Analyte not analyzed for
- "-FD" denotes field duplicate sample
- "-FF" denotes field filtered sample
- PCB = Polychlorinated biphenyl

(2) Field duplicate for PCB Congeners dissolved results were used as parent sample was not filtered.

Table 3-1a Summary for Positive Analytical Results for Phase II (October/November 2019) Surface Water High Flow Events, Eighteen Mile Creek OU3, New York

Analytes	Reach No.:	06	06	06	06	07	07	07	07	07	07
	Zone No.:	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3
	Sample ID:	OU3-R6-SW14-EV1-FF-OCT19	OU3-R6-SW14-EV1-OCT19	OU3-R6-SW14-EV2-FF-NOV19	OU3-R6-SW14-EV2-NOV19	OU3-R7-SW18-EV1-FF-OCT19	OU3-R7-SW18-EV1-OCT19	OU3-R7-SW18-EV2-FF-NOV19	OU3-R7-SW18-EV2-NOV19	OU3-R7-SW21-EV1-FD-OCT19	OU3-R7-SW21-EV1-FF-FD-OCT19
	Sample Date:	10/2/2019	10/2/2019	11/1/2019	11/1/2019	10/2/2019	10/2/2019	11/1/2019	11/1/2019	10/2/2019	10/2/2019
Metals (ug/L)											
Aluminum		20 U	710	23	2200	20 U	650	21	1900	190 U	20 U
Arsenic		1 U	1	1	1.8	1 U	1	1 U	1.3	1 U	1 U
Barium		31	37	33 U	55	27	35	29 U	42	24	24
Calcium		55000	54000	48000 U	49000	58000	57000	53000 U	54000	61000	62000
Chromium, Total		1 U	1.7	1 U	3.7	1 U	1.9	1 U	2.8	1 U	1 U
Cobalt		1 U	1 U	1 U	1.2	1 U	1 U	1 U	1 U	1 U	1 U
Copper		1.9	5.5	3.2 U	9.4	2.1	7.5	2.8 U	6.1	3.1	1.4
Iron		37	1100	140	3100	32	1000	98	2400	370	20 U
Lead		1 U	5.1	1 U	7.7	1 U	6.8	1 U	3.8	1.6	1 U
Magnesium		11000	11000	10000	11000	11000	12000	12000	12000	10000	11000
Manganese		26	59	48 U	110	18	50	21 U	49	22	5.1
Nickel		1 U	2	1 U	3.7	1 U	2.1	1.1 U	3.1	1	1 U
Potassium		4300	4300	8100 U	8400	4200	4100	5100 U	5400	2400	2400
Sodium		53000	52000	29000 U	30000	60000	63000	45000 U	41000	29000 U	31000
Vanadium		1 U	1.7	1 U	4.1	1 U	1.6	1 U	3.4	1 U	1 U
Zinc		3.4	17	3.4 U	26	4.3	19	7.1 U	24	6.8	2 U
Mercury (ug/L)											
None Detected											
PCB Congeners (ng/L)											
Total PCB Congener ⁽¹⁾		5.9 J	156 J	3.6 J	140 J	6.7 J	159 J	2.6 J	51 J	46 J	0.107 J

Key:
J = Estimated value
J- = Estimated value with low bias
U = Not detected (quantitation limit shown)
DU = Data Unavailable
NR= Data Not Reported

Notes
(1) Sum = Total of detect values in the analyte group.

Other
µg/L = Micrograms per liter
ng/L = Nanograms per liter
-- = Analyte not analyzed for
"-FD" denotes field duplicate sample
"-FF" denotes field filtered sample
PCB = Polychlorinated biphenyl

Table 3-1a Summary for Positive Analytical Results for Phase II (October/November 2019) Surface Water High Flow Events, Eighteen Mile Creek OU3, New York

Analytes	Reach No.:	07	07	07	07
	Zone No.:	Zone 3	Zone 3	Zone 3	Zone 3
	Sample ID:	OU3-R7-SW21-EV1-FF-OCT19	OU3-R7-SW21-EV1-OCT19	OU3-R7-SW21-EV2-FF-NOV19	OU3-R7-SW21-EV2-NOV19
	Sample Date:	10/2/2019	10/2/2019	11/1/2019	11/1/2019
Metals (ug/L)					
Aluminum		20 U	190 U	150	2000
Arsenic		1 U	1 U	1 U	1.2
Barium		23	25	23 U	37
Calcium		64000	61000	56000 U	54000
Chromium, Total		1 U	1 U	1 U	2.8
Cobalt		1 U	1 U	1 U	1 U
Copper		1.4	3	2.9 U	5.7
Iron		20 U	380	270	2700
Lead		1 U	1.6	1 U	3.1
Magnesium		10000	11000	11000	11000
Manganese		5.3	22	16 U	43
Nickel		1 U	1.1	1.3 U	3.2
Potassium		2400	2400	4300 U	4400
Sodium		29000	30000 U	31000 U	30000
Vanadium		1 U	1 U	1 U	3.7
Zinc		2.6	5.7	10 U	18
Mercury (ug/L)					
None Detected					
PCB Congeners (ng/L)					
Total PCB Congener ⁽¹⁾		0.09 J	36 J	2.3 J	24 J

Key:
J = Estimated value
J- = Estimated value with low bias
U = Not detected (quantitation limit shown)
DU = Data Unavailable
NR= Data Not Reported

Notes
(1) Sum = Total of detect values in the analyte group.

Other
µg/L = Micrograms per liter
ng/L = Nanograms per liter
-- = Analyte not analyzed for
"-FD" denotes field duplicate sample
"-FF" denotes field filtered sample
PCB = Polychlorinated biphenyl

Table 3-1b Summary for Water Quality Data for Phase II (October/November 2019) Surface Water High Flow and Flow Monitoring Events (July-December 2019),
Eighteen Mile Creek OU3, New York

Event:	High Flow	High Flow	High Flow	High Flow	High Flow	High Flow	High Flow	Flow Monitoring	Flow Monitoring	High Flow	High Flow	High Flow
Reach No.:	01	01	06	06	07	07	07	04	04	04	04	04
Transect No.:	Zone 1	Zone 1	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 2	Zone 2	Zone 2	Zone 2	Zone 2
Sample ID:	OU3-R1- SW05-EV1- OCT19	OU3-R1- SW05-EV2- NOV19	OU3-R6- SW14-EV1- OCT19	OU3-R6- SW14-EV2- NOV19	OU3-R7- SW18-EV1- OCT19	OU3-R7- SW18-EV2- NOV19	OU3-R7- SW18-EV2- NOV19	OU3-R4- SW10-EV3- JUL18	OU3-R4- SW10-EV4- AUG19	OU3-R4- SW10-EV1- OCT19	OU3-R4- SW10-EV2-FD- NOV19	OU3-R4- SW10-EV2- NOV19
Sample Date:	10/2/2019	11/1/2019	10/2/2019	11/1/2019	10/2/2019	11/1/2019	11/1/2019	7/24/2019	8/28/2019	10/2/2019	11/1/2019	11/1/2019
Analytes												
Total Suspended Solids (mg/L)												
Residue, Non-Filterable	3.9	12	33	79	38	38	13	6.8	28	78	84	
Total Dissolved Solids (mg/L)												
Residue, Filterable	380	420	380	330	400	360	510	420	370	340	340	
Organic Carbon, Dissolved (mg/L) ⁽¹⁾												
Dissolved Organic Carbon	4.4 U	8.1	6.5	13	6.3	11	--	--	6.1	13	13	
Field Parameters												
pH	DU	DU	DU	DU	DU	DU	DU	8.42	DU	DU	DU	
Temperature (°C)	DU	DU	DU	DU	DU	DU	DU	-4.89	DU	DU	DU	
Conductivity (uS/cm)	DU	DU	DU	DU	DU	DU	DU	750.1	DU	DU	DU	
Oxidation Reduction Potential, ORP (mV)	DU	DU	DU	DU	DU	DU	DU	83	DU	DU	DU	
Turbidity (NTU)	DU	DU	DU	DU	DU	DU	DU	5.62	DU	DU	DU	
Hardness (mg/L)	211.7	234.1	180.1	167.7	191.7	184.3	--	--	192.6	165.2	167.7	
Hardness (mg/L) ⁽¹⁾	216.7	0.6615 U	182.6	41.2	190.1	49.4	--	--	206.7	41.2	45.3	

Key:
U = Not detected (quantitation limit shown)
DU = Data Unavailable

Other
mg/L = Milligrams per liter
-- = Analyte not analyzed for
"-FD" denotes field duplicate sample

Notes
(1) Samples were filtered in field for analyte

Table 3-1b Summary for Water Quality Data for Phase II (October/November 2019) Surface Water High Flow and Flow Monitoring Events (July-December 2019),
Eighteen Mile Creek OU3, New York

Event: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Flow Monitoring 04 Zone 2 OU3-R4- SW10-EV5- NOV19 11/21/2019	Flow Monitoring 04 Zone 2 OU3-R4- SW10-EV6- DEC19 12/9/2019	Flow Monitoring 06 Zone 3 OU3-R6- SW15-EV3- JUL18 7/24/2019	Flow Monitoring 06 Zone 3 OU3-R6- SW15-EV4- AUG19 8/28/2019	High Flow 06 Zone 3 OU3-R6- SW15-EV1- OCT19 10/2/2019	High Flow 06 Zone 3 OU3-R6- SW15-EV2- NOV19 11/1/2019	Flow Monitoring 06 Zone 3 OU3-R6- SW15-EV5- NOV19 11/21/2019	Flow Monitoring 06 Zone 3 OU3-R6- SW15-EV6- DEC19 12/9/2019	Flow Monitoring EB Zone 3 OU3-EB- SW16-EV3- JUL18 7/24/2019	Flow Monitoring EB Zone 3 OU3-EB- SW16-EV4- AUG19 8/28/2019	High Flow EB Zone 3 OU3-EB- SW16-EV1- OCT19 10/2/2019
Total Suspended Solids (mg/L)											
Residue, Non-Filterable	8	10 U	10 U	10	33	48	7.8	16	10	6.3	61
Total Dissolved Solids (mg/L)											
Residue, Filterable	510	510	530	400	360	350	540	530	460	470	360
Organic Carbon, Dissolved (mg/L) ⁽¹⁾											
Dissolved Organic Carbon	--	--	--	--	--	--	--	--	--	--	--
Field Parameters											
pH	8.2	7.12	DU	8.05	DU	DU	7.65	7.49	DU	8.17	DU
Temperature (°C)	3.94	7.2	DU	-5.6	DU	DU	4.28	6.1	DU	-4.61	DU
Conductivity (uS/cm)	813	904.5	DU	796.8	DU	DU	811	843.4	DU	676.3	DU
Oxidation Reduction Potential, ORP (mV)	131	263	DU	85	DU	DU	166	267	DU	80	DU
Turbidity (NTU)	10.93	13.6	DU	0.89	DU	DU	11.7	15.1	DU	0.57	DU
Hardness (mg/L)	--	--	--	--	--	--	--	--	--	--	--
Hardness (mg/L) ⁽¹⁾	--	--	--	--	--	--	--	--	--	--	--

Key:
U = Not detected (quantitation limit shown)
DU = Data Unavailable

Other
mg/L = Milligrams per liter
-- = Analyte not analyzed for
"-FD" denotes field duplicate sample

Notes
(1) Samples were filtered in field for analyte

Table 3-1b Summary for Water Quality Data for Phase II (October/November 2019) Surface Water High Flow and Flow Monitoring Events (July-December 2019),
Eighteen Mile Creek OU3, New York

Event:	High Flow	Flow Monitoring	Flow Monitoring	Flow Monitoring	Flow Monitoring	High Flow	High Flow	Flow Monitoring	Flow Monitoring	Flow Monitoring	Flow Monitoring
Reach No.:	EB	EB	EB	07	07	07	07	07	07	07	07
Transect No.:	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3
Sample ID:	OU3-EB- SW16-EV2- NOV19	OU3-EB- SW16-EV5- NOV19	OU3-EB- SW16-EV6- DEC19	OU3-R7- SW20-EV3- JUL18	OU3-R7- SW20-EV4- AUG19	OU3-R7- SW20-EV1- OCT19	OU3-R7- SW20-EV2- NOV19	OU3-R7- SW20-EV5- NOV19	OU3-R7- SW20-EV6- DEC19	OU3-R7- SW21-EV3- JUL18	OU3-R7- SW21-EV4- AUG19
Sample Date:	11/1/2019	11/21/2019	12/9/2019	7/24/2019	8/28/2019	10/2/2019	11/1/2019	11/21/2019	12/9/2019	7/24/2019	8/28/2019
Analytes											
Total Suspended Solids (mg/L)											
Residue, Non-Filterable	78	6.1	19	10 U	18	17	27	8	14	13	19
Total Dissolved Solids (mg/L)											
Residue, Filterable	330	500	480	580	420	380	390	560	520	450	320
Organic Carbon, Dissolved (mg/L) ⁽¹⁾											
Dissolved Organic Carbon	--	--	--	--	--	--	--	--	--	--	--
Field Parameters											
pH	DU	8.03	7.82	DU	8.23	DU	DU	8.21	7.9	DU	8.22
Temperature (°C)	DU	3.6	6.4	DU	-5.11	DU	DU	-1.1	4.4	DU	
Conductivity (uS/cm)	DU	772.4	785.3	DU	912.5	DU	DU	878.8	882.6	DU	648.4
Oxidation Reduction Potential, ORP (mV)	DU	144	170	DU	76	DU	DU	137	164	DU	84
Turbidity (NTU)	DU	12.3	16.6	DU	0.47	DU	DU	10.9	14.1	DU	1.28
Hardness (mg/L)	--	--	--	--	--	--	--	--	--	--	--
Hardness (mg/L) ⁽¹⁾	--	--	--	--	--	--	--	--	--	--	--

Key:
U = Not detected (quantitation limit shown)
DU = Data Unavailable

Other
mg/L = Milligrams per liter
-- = Analyte not analyzed for
"-FD" denotes field duplicate sample

Notes
(1) Samples were filtered in field for analyte

Table 3-1b Summary for Water Quality Data for Phase II (October/November 2019) Surface Water High Flow and Flow Monitoring Events (July-December 2019),
Eighteen Mile Creek OU3, New York

Event:	High Flow	High Flow	High Flow	Flow Monitoring	Flow Monitoring	Flow Monitoring	Flow Monitoring	High Flow	High Flow	Flow Monitoring	Flow Monitoring
Reach No.:	07	07	07	07	07	GC	GC	GC	GC	GC	GC
Transect No.:	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3	Zone 3
Sample ID:	OU3-R7- SW21-EV1-FD	OU3-R7- SW21-EV1-	OU3-R7- SW21-EV2-	OU3-R7- SW21-EV5-	OU3-R7- SW21-EV6-	OU3-GC- SW23-EV3-	OU3-GC- SW23-EV4-	OU3-GC- SW23-EV1-	OU3-GC- SW23-EV2-	OU3-GC- SW23-EV5-	OU3-GC- SW23-EV6-
Sample Date:	OCT19	OCT19	NOV19	NOV19	DEC19	JUL18	AUG19	OCT19	NOV19	NOV19	DEC19
Sample Date:	10/2/2019	10/2/2019	11/1/2019	11/21/2019	12/9/2019	7/24/2019	8/28/2019	10/2/2019	11/1/2019	11/21/2019	12/9/2019
Analytes											
Total Suspended Solids (mg/L)											
Residue, Non-Filterable	15	14	43	12	16	10	4.8	13	11	1.4	10 U
Total Dissolved Solids (mg/L)											
Residue, Filterable	310	320	350	480	430	950	990	400	460	860	800
Organic Carbon, Dissolved (mg/L) ⁽¹⁾											
Dissolved Organic Carbon	4 U	4 U	10	--	--	--	--	--	--	--	--
Field Parameters											
pH	DU	DU	DU	8.45	8.22	DU	7.94	DU	DU	8.28	8.15
Temperature (°C)	DU	DU	DU	2.94	2.9	DU		DU	DU	5.39	4.3
Conductivity (uS/cm)	DU	DU	DU	731.5	689.4	DU	150	DU	DU	1374	1369
Oxidation Reduction Potential, ORP (mV)	DU	DU	DU	151	167	DU	92	DU	DU	149	168
Turbidity (NTU)	DU	DU	DU	12.2	18.4	DU	0.33	DU	DU	4.52	7.35
Hardness (mg/L)	193.5	197.6	180.1	--	--	--	--	--	--	--	--
Hardness (mg/L) ⁽¹⁾	200.1	201.0	45.3	--	--	--	--	--	--	--	--

Key:

U = Not detected (quantitation limit shown)
DU = Data Unavailable

Notes

(1) Samples were filtered in field for analyte

Other

mg/L = Milligrams per liter
-- = Analyte not analyzed for
"-FD" denotes field duplicate sample

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 05 T05 OU3-R5-T05E- S05-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S05-Z2 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S06-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S06-Z2 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S07-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S07-Z2 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S08-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S08-Z2 7/31/2019	Phase IIA 06 T06 OU3-R6-T06E- S05-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S05-Z2 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S06-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- FD 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S06-Z2 7/26/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.11 U	0.099 U	0.09 U	0.1 UJ	0.1 U	0.091 U	0.022 J	0.084 U	0.06 J	0.04 J	0.02 J	0.021 J	0.027 J
PCB-1254 (Aroclor 1254)	0.11 U	0.099 U	0.019 J	0.018 J-	0.1 U	0.091 U	0.027 J	0.013 J	0.14	0.063	0.025 J	0.026 J	0.05 J
PCB-1260 (Aroclor 1260)	0.11 U	0.099 U	0.09 U	0.1 UJ	0.1 U	0.091 U	0.076 U	0.084 U	0.12	0.029 J	0.019 J	0.017 J	0.055 U
PCB, Total ⁽¹⁾	0.11 U	0.099 U	0.019 J	0.018 J-	0.1 U	0.091 U	0.049 J	0.013 J	0.32 J	0.132 J	0.064 J	0.064 J	0.077 J
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.011 U	0.0099 U	0.009 U	0.01 U	0.01 U	0.0091 U	0.0016 J	0.0045 J	0.013	0.0027 J	0.0047 J	0.0047 J	0.0096
4-Bromophenyl Phenyl Ether	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.3 U	0.28 U
4-Chloroaniline	1.1 U	0.99 U	0.9 U	1 U	1 U	0.91 U	0.76 U	0.84 U	0.82 U	0.61 U	0.57 U	0.58 U	0.55 U
4-Chlorophenyl Phenyl Ether	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.3 U	0.28 U
Acenaphthene	0.011 U	0.0099 U	0.009 U	0.01 U	0.01 U	0.0091 U	0.0022 J	0.0053 J	0.03	0.0044 J	0.01	0.0094	0.021
Acenaphthylene	0.011 U	0.0099 U	0.009 U	0.0039 J	0.01 U	0.0022 J	0.0066 J	0.032	0.016	0.016	0.019	0.027	0.039
Acetophenone	1.1 U	0.99 U	0.9 U	1 U	1 U	0.91 U	0.76 U	0.84 U	0.82 U	0.61 U	0.57 U	0.58 U	0.55 U
Anthracene	0.011 U	0.0099 U	0.009 U	0.0034 J	0.01 U	0.0091 U	0.0096	0.037	0.06	0.024	0.046	0.048	0.075
Benzaldehyde	1.1 U	0.99 U	0.9 U	1 U	1 U	0.91 U	0.76 U	0.84 U	0.82 U	0.61 U	0.57 U	0.58 U	0.55 U
Benzo(A)Anthracene	0.0027 J	0.0047 J	0.012	0.011	0.0076 J	0.0092	0.048	0.096	0.23	0.097	0.21	0.22	0.34
Benzo(A)Pyrene	0.011 U	0.0031 J	0.013	0.0075 J	0.009 J	0.0074 J	0.074	0.11	0.17	0.096	0.12	0.16	0.27
Benzo(B)Fluoranthene	0.011 U	0.005 J	0.021	0.012	0.014	0.012	0.11	0.2	0.23	0.099	0.17	0.23	0.36
Benzo(G,H,I)Perylene	0.011 U	0.0099 U	0.0094	0.0056 J	0.0061 J	0.0063 J	0.057	0.082	0.079	0.048	0.08	0.08	0.14
Benzo(K)Fluoranthene	0.011 U	0.0099 U	0.0056 J	0.0032 J	0.0052 J	0.0044 J	0.043	0.06	0.071	0.047	0.077	0.073	0.13
Benzyl Butyl Phthalate	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.3 U	0.28 U
Bis(2-Ethylhexyl) Phthalate	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.078 J	0.058 J
Carbazole	1.1 U	0.99 U	0.9 U	1 U	1 U	0.91 U	0.76 U	0.84 U	0.82 U	0.61 U	0.57 U	0.58 U	0.55 U
Chrysene	0.011 U	0.0036 J	0.0093	0.0083 J	0.0059 J	0.0077 J	0.055	0.092	0.17	0.09	0.14	0.16	0.24
Dibenz(A,H)Anthracene	0.011 U	0.0099 U	0.009 U	0.01 U	0.01 U	0.0091 U	0.013	0.022	0.03	0.021	0.034	0.032	0.05
Dibenzofuran	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.3 U	0.28 U
Diethyl Phthalate	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.3 U	0.28 U
Dimethyl Phthalate	0.19 J	0.43 J	0.46	0.55	0.5 J	0.35 J	0.29 J	0.31 J	0.9	0.75	0.72	0.8	0.58
Di-N-Butyl Phthalate	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.3 U	0.28 U
Di-N-Octylphthalate	1.1 U	0.99 U	0.9 U	1 U	1 U	0.91 U	0.76 U	0.84 U	0.82 U	0.61 U	0.57 U	0.58 U	0.55 U
Fluoranthene	0.0033 J	0.0074 J	0.017	0.017	0.0099 J	0.013	0.09	0.23	0.3	0.15	0.25	0.31	0.49
Fluorene	0.011 U	0.0099 U	0.009 U	0.01 U	0.01 U	0.0091 U	0.0024 J	0.0078 J	0.023	0.0057 J	0.011	0.013	0.021
Hexachlorobenzene	0.54 U	0.51 U	0.46 U	0.54 U	0.53 U	0.47 U	0.39 U	0.43 U	0.42 U	0.32 U	0.3 U	0.3 U	0.28 U
Indeno(1,2,3-C,D)Pyrene	0.011 U	0.0099 U	0.0082 J	0.0047 J	0.0058 J	0.0054 J	0.049	0.075	0.082	0.056	0.088	0.089	0.14
Naphthalene	0.011 U	0.0099 U	0.009 U	0.01 U	0.01 U	0.0091 U	0.0026 J	0.0082 J	0.01	0.0037 J	0.0056 J	0.0061	0.0097
Pentachlorophenol	0.021 U	0.02 U	0.018 U	0.021 U	0.021 U	0.019 U	0.015 U	0.017 U	0.017 U	0.012 U	0.012 U	0.012 U	0.011 U
Phenanthrene	0.011 U	0.0033 J	0.0067 J	0.011	0.01 U	0.0064 J	0.033	0.091	0.31	0.071	0.15	0.19	0.31
Phenol	0.14 J	0.25 J	0.22 J	0.29 J	0.27 J	0.2 J	0.18 J	0.17 J	0.15 J	0.15 J	0.12 J	0.17 J	0.11 J
Pyrene	0.0035 J	0.0069 J	0.017	0.018	0.012	0.017	0.098	0.24	0.38	0.14	0.39	0.35	0.5

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 05 T05 OU3-R5-T05E- S05-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S05-Z2 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S06-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S06-Z2 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S07-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S07-Z2 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S08-Z1 7/31/2019	Phase IIA 05 T05 OU3-R5-T05E- S08-Z2 7/31/2019	Phase IIA 06 T06 OU3-R6-T06E- S05-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S05-Z2 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S06-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- FD 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S06-Z2 7/26/2019
PAH Mixtures ⁽¹⁾	0.0095 J	0.034 J	0.1192 J	0.1056 J	0.0755 J	0.091 J	0.695 J	1.3928 J	2.204	0.9715 J	1.8053 J	2.0022 J	3.1453
PAH, Total HMW ⁽¹⁾	0.0095 J	0.0307 J	0.1125 J	0.0873 J	0.0755 J	0.0824 J	0.637	1.207	1.742	0.844	1.559	1.704	2.66
PAH, Total LMW ⁽¹⁾	0.011 U	0.0033 J	0.0067 J	0.0183 J	0.01 U	0.0086 J	0.058 J	0.1858 J	0.462	0.1275 J	0.2463 J	0.2982 J	0.4853
Metals (mg/kg)													
Antimony	2.2 UJ	2.2 UJ	2 UJ	2.4 UJ	2.1 UJ	2 UJ	1.7 UJ	2.7 J	1.8 UJ	1.9	1.3 U	1.3 U	2.6
Arsenic	5.6 J	14.5 J	6.9 J	10.8 J	12.7 J	15.5 J	9.7 J	13.9 J	7.3 J	7	5	7.5	11.4
Barium	161 J	237 J	195 J	226 J	211 J	250 J	180 J	237 J	180 J	226	142	169	234
Beryllium	0.61 J	0.86 J	0.78 J	0.9 J	0.79 J	0.86 J	0.68 J	0.85 J	0.91 UJ	0.68 U	0.63 U	0.63 U	0.59 U
Cadmium	1.4 J	5.5 J	1.7 J	1.9 J	2 J	2.8 J	2.8 J	2.8 J	2.2 J	4.8	1.8	2.5	4.1
Chromium, Total	36.3 J	55 J	59.9 J	104 J	67.9 J	107 J	90 J	223 J	97.8 J	225	101	123	313
Cobalt	10.8 J	14 J	13.5 J	14.5 J	14.5 J	15.7 J	13.3 J	12 J	14.5 J	11.4	9.6	11.9	16
Copper	96.1 J	140 J	147 J	230 J	182 J	234 J	184 J	520 J	215 J	438	223	259	614
Lead	113 J	185 J	182 J	380 J	212 J	334 J	312 J	965 J	312 J	630	293	328	810
Manganese	634 J	687 J	711 J	666 J	370 J	401 J	937 J	328 J	844 J	378	600	711	1110
Nickel	34.1 J	58.5 J	47.1 J	81.9 J	70 J	90.3 J	62.2 J	102 J	60.1 J	107	50.5	62.5	116
Selenium	0.87 J	1.2 J	1.1 J	1.3 J	0.89 J	1 J	0.68 J	1.4 J	0.59 J	0.73 J	0.59 J	0.76 J	0.83 J
Silver	1.1 UJ	1.1 UJ	1 UJ	1.5 J	1.2 J	1.4 J	1 J	2.1 J	1.5 J	2.4	1.3	1.5	2.8
Vanadium	18.5 J	27.8 J	23.5 J	31.4 J	27.4 J	33.2 J	24.9 J	34.9 J	23.3 J	29.1	18.3	21.5	25.7
Zinc	409 J	922 J	555 J	863 J	851 J	1150 J	764 J	1340 J	786 J	1740	737	884	1940
Mercury (mg/kg)													
Mercury	0.35 J	0.59 J	0.67 J	0.73 J	0.64 J	0.72 J	0.64 J	1.9 J	1.2 J	1.1	1.2	1.6	2

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 06 T06 OU3-R6-T06E- S07-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S07-Z2 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S08-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S08-Z2 7/26/2019	Phase IIA 06 T08 OU3-R6-T08E- S05-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S05-Z2 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S06-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S06-Z2 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S07-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S07-Z2 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- FD 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S08-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S08-Z2 7/31/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.042 U	0.038 U	0.041 J	0.013 J	0.26 J+	0.073 J+	1.1	0.79	0.041 U	0.038 U	0.038 U	0.071 UJ	0.14 J-
PCB-1254 (Aroclor 1254)	0.042 U	0.038 U	0.046 J	0.025 J	0.049 U	0.042 U	0.041 U	0.043 U	0.041 U	0.038 U	0.038 U	10	0.09 J-
PCB-1260 (Aroclor 1260)	0.042 U	0.038 U	0.065 U	0.066 U	0.049 U	0.042 U	0.82	0.19	0.041 U	0.038 U	0.038 U	5.7	0.078 UJ
PCB, Total ⁽¹⁾	0.042 U	0.038 U	0.087 J	0.038 J	0.26 J+	0.073 J+	1.92	0.98	0.041 U	0.038 U	0.038 U	15.7	0.23 J-
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0034 J	0.0018 J	0.0014 J	0.0065 U	0.0076	0.014	0.018	0.0057	0.0016 J	0.0038 U	0.0038 U	0.0018 J	0.0078 U
4-Bromophenyl Phenyl Ether	0.22 U	0.19 U	0.33 U	0.34 U	0.25 U	0.22 U	0.21 U	0.22 U	0.21 U	0.19 U	0.2 U	0.36 U	0.4 U
4-Chloroaniline	0.42 U	0.38 U	0.65 U	0.65 U	0.49 U	0.42 U	0.41 U	0.42 U	0.41 U	0.38 U	0.38 U	0.71 U	0.78 U
4-Chlorophenyl Phenyl Ether	0.22 U	0.19 U	0.33 U	0.34 U	0.25 U	0.22 U	0.21 U	0.22 U	0.21 U	0.19 U	0.2 U	0.36 U	0.4 U
Acenaphthene	0.0083	0.0028 J	0.0019 J	0.0065 U	0.0092	0.013	0.028	0.0082	0.0011 J	0.0038 U	0.0038 U	0.0059 J	0.0039 J
Acenaphthylene	0.05	0.016	0.012	0.0022 J	0.032	0.047	0.055	0.016	0.0037 J	0.0023 J	0.0029 J	0.0064 J	0.0057 J
Acetophenone	0.42 U	0.38 U	0.65 U	0.65 U	0.49 U	0.42 U	0.41 U	0.42 U	0.41 U	0.38 U	0.38 U	0.71 U	0.78 U
Anthracene	0.093	0.018	0.017	0.003 J	0.048	0.085	0.13	0.036	0.0053	0.00295 J	0.0038	0.025	0.015
Benzaldehyde	0.22 J	0.38 U	0.65 U	0.65 U	0.49 U	0.42 U	0.41 U	0.42 U	0.41 U	0.38 U	0.38 U	0.71 U	0.78 U
Benzo(A)Anthracene	0.22	0.077	0.064	0.012	0.26	0.35	0.54	0.19	0.024	0.0127 J	0.017 J	0.1	0.073
Benzo(A)Pyrene	0.19	0.052	0.07	0.011	0.27	0.3	0.48	0.19	0.028	0.0135 J	0.017	0.099	0.062
Benzo(B)Fluoranthene	0.28	0.078	0.094	0.015	0.35	0.4	0.53	0.24	0.038	0.0185 J	0.023	0.11	0.076
Benzo(G,H,I)Perylene	0.11	0.042	0.043	0.0069	0.17	0.2	0.3	0.12	0.017	0.00825 J	0.01	0.054	0.034
Benzo(K)Fluoranthene	0.087	0.037	0.037	0.0054 J	0.13	0.14	0.23	0.084	0.015	0.00765 J	0.0095	0.04	0.026
Benzyl Butyl Phthalate	0.22 U	0.19 U	0.33 U	0.34 U	0.25 U	0.22 U	0.21 U	0.22 U	0.21 U	0.19 U	0.2 U	0.36 U	0.4 U
Bis(2-Ethylhexyl) Phthalate	0.22 U	0.19 U	0.33 U	0.34 U	0.27	0.22 U	0.57	0.22 U	0.21 U	0.19 U	0.2 U	1.5	1.2
Carbazole	0.42 U	0.38 U	0.65 U	0.65 U	0.49 U	0.42 U	0.41 U	0.42 U	0.41 U	0.38 U	0.38 U	0.71 U	0.78 U
Chrysene	0.15	0.059	0.055	0.0088	0.27	0.32	0.6	0.15	0.018	0.00995 J	0.013	0.085	0.066
Dibenz(A,H)Anthracene	0.032	0.015	0.013	0.0019 J	0.046	0.058	0.1	0.036	0.0048	0.00265 J	0.0035 J	0.018	0.01
Dibenzofuran	0.22 U	0.19 U	0.33 U	0.34 U	0.25 U	0.22 U	0.21 U	0.22 U	0.21 U	0.19 U	0.2 U	0.36 U	0.4 U
Diethyl Phthalate	0.22 U	0.19 U	0.33 U	0.34 U	0.25 U	0.22 U	0.21 U	0.22 U	0.21 U	0.19 U	0.2 U	0.36 U	0.4 U
Dimethyl Phthalate	0.34	0.43	0.5	0.45	0.19 J	0.18 J	0.19 J	0.17 J	0.18 J	0.125 J	0.13 J	0.25 J	0.39 J
Di-N-Butyl Phthalate	0.22 U	0.19 U	0.33 U	0.34 U	0.25 U	0.22 U	0.21 U	0.22 U	0.21 U	0.19 U	0.2 U	0.36 U	0.4 U
Di-N-Octylphthalate	0.42 U	0.38 U	0.65 U	0.65 U	0.49 U	0.42 U	0.41 U	0.42 U	0.41 U	0.38 U	0.38 U	0.71 U	0.78 U
Fluoranthene	0.43	0.13	0.095	0.015	0.37	0.45	0.71 J	0.26	0.034	0.017 J	0.022	0.14	0.091
Fluorene	0.026	0.0043	0.0038 J	0.0065 U	0.012	0.015	0.023	0.0075	0.0015 J	0.0011 J	0.0011 J	0.0053 J	0.004 J
Hexachlorobenzene	0.22 U	0.19 U	0.33 U	0.34 U	0.25 U	0.22 U	0.21 U	0.22 U	0.21 U	0.19 U	0.2 U	0.36 U	0.4 U
Indeno(1,2,3-C,D)Pyrene	0.11	0.047	0.038	0.0059 J	0.15	0.17	0.27	0.1	0.015	0.0076 J	0.0094	0.047	0.03
Naphthalene	0.0056	0.0021 J	0.0028 J	0.0065 U	0.0088	0.016	0.018	0.0066	0.0019 J	0.00098 J	0.00098 J	0.0022 J	0.0017 J
Pentachlorophenol	0.0085 U	0.0077 U	0.013 U	0.013 U	0.0099 U	0.0086 U	0.0048 J	0.0086 U	0.0082 U	0.0077 U	0.0077 U	0.014 U	0.016 U
Phenanthrene	0.32	0.065	0.044	0.0081	0.18	0.26	0.41	0.14	0.02	0.00955 J	0.012 J	0.073	0.044
Phenol	0.42 U	0.089 J	0.65 U	0.65 U	0.1 J	0.11 J	0.12 J	0.091 J	0.095 J	0.075 J	0.083 J	0.13 J	0.22 J
Pyrene	0.38	0.13	0.098	0.018	0.39	0.48	0.84	0.29	0.038	0.0195 J	0.025	0.17	0.12

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Analytes	Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIA 06 T06 OU3-R6-T06E- S07-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S07-Z2 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S08-Z1 7/26/2019	Phase IIA 06 T06 OU3-R6-T06E- S08-Z2 7/26/2019	Phase IIA 06 T08 OU3-R6-T08E- S05-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S05-Z2 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S06-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S06-Z2 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S07-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S07-Z2 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- FD 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S08-Z1 7/31/2019	Phase IIA 06 T08 OU3-R6-T08E- S08-Z2 7/31/2019
PAH Mixtures ⁽¹⁾		2.4953 J	0.777 J	0.6899 J	0.1132 J	2.7036	3.318	5.282 J	1.88	0.2669 J	0.13314 J	0.17018 J	0.9826 J	0.6623 J
PAH, Total HMW ⁽¹⁾		1.989	0.667	0.607	0.0999 J	2.406	2.868	4.6 J	1.66	0.2318	0.1173 J	0.1494 J	0.863	0.588
PAH, Total LMW ⁽¹⁾		0.5063 J	0.11 J	0.0829 J	0.0133 J	0.2976	0.45	0.682	0.22	0.0351 J	0.01584 J	0.02078 J	0.1196 J	0.0743 J
Metals (mg/kg)														
Antimony		0.93 U	0.82 U	1.5 U	1.5 U	1.7	2.2	2	1.3	0.9 U	0.83 U	0.84 U	1.6 UJ	1.7 UJ
Arsenic		4.9	4.1	8.9	7.7	30	23.6	25.9	12	4.1	2.5 J	2.6	4.4 J	5.5 J
Barium		55.3	44.9	199	186	228	293	230	292	90.3	98.55 J	97.5	133 J	131 J
Beryllium		0.32 J	0.41 U	0.74 U	0.72 U	0.5 J	0.56	0.55	0.55	0.39 J	0.415 J	0.4 J	0.55 J	0.51 J
Cadmium		0.27 J	0.41 U	3.6	3.3	2.8	1.4	2.7	0.82	0.31 J	0.135 J	0.16 J	0.92 J	1.3 J
Chromium, Total		7.9	6.8	216	207	168	99.5	212	77.5	12.8	10.05 J	10.1	61.5 J	65 J
Cobalt		5.2	4.6	20.4	16.5	10.8	10.1	11.7	9.5	7.4	8.5 J	8.6	10 J	9.7 J
Copper		26.7	26.2	374	345	417	295	468	161	16.7	10.25 J	10.4	155 J	165 J
Lead		33.7	31.2	583	539	718	440	789	299	39.1	21.35 J	21.9	192 J	194 J
Manganese		811	766	1610	955	548	465	452	501	480	567 J	565	692 J	532 J
Nickel		11.3	10.2	143	124	74.6	47.4	89.3	36.5	12.6	10.8 J	10.9	36.6 J	38.2 J
Selenium		0.45 J	2.1 U	0.92 J	0.55 J	0.84 J	0.69 J	0.6 J	0.45 J	2.3 U	0.25 J	2.1 U	0.98 J	0.8 J
Silver		0.47 U	0.41 U	1.9	2.1	1.8	1.9	2.1	1.2	0.45 U	0.42 U	0.42 U	0.8 UJ	0.87 J
Vanadium		12.5	10.3	30.4	28.2	22.2	18.2	23.4	17.2	12.5	12.25 J	12.4	16.1 J	16.4 J
Zinc		64.7	46.7	1750	1410	1190	765	1570	445	73.3	46.75 J	47.8	442 J	455 J
Mercury (mg/kg)														
Mercury		0.077 J	0.11 U	0.58	1.2	2.4	3.4	2.5	3	0.31	0.255 J	0.22	0.73 J	0.66 J

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 06 T09 OU3-R6-T09E- S06-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S06-Z2 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S07-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S07-Z2 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S08-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6- T09E2-FD 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S08-Z2 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S10-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S10-Z2 7/25/2019	Phase IIA 07 T11 OU3-R7- T11W-S06-Z1 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S06-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S06-Z3 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S07-Z1 7/26/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.55	2.7	0.011 J	0.042 U	0.058 U	0.054 U	0.046 U	0.12	1	0.041 J-	0.02 J	0.041 U	0.0061 J-
PCB-1254 (Aroclor 1254)	0.76	2.5	0.013 J	0.042 U	0.058 U	0.054 U	0.046 U	0.13	1.3	0.038 J-	0.02 J	0.041 U	0.0064 J-
PCB-1260 (Aroclor 1260)	0.043 U	0.04 U	0.047 U	0.042 U	0.058 U	0.054 U	0.046 U	0.04 U	0.046 U	0.057 UJ	0.047 U	0.041 U	0.061 UJ
PCB, Total ⁽¹⁾	1.31	5.2	0.024 J	0.042 U	0.058 U	0.054 U	0.046 U	0.25	2.3	0.079 J-	0.04 J	0.041 U	0.0125 J-
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0049	0.007	0.0013 J	0.0012 J	0.0058 U	0.0054 U	0.0046 U	0.013	0.0072	0.004 J	0.0029 J	0.0041 U	0.0062 U
4-Bromophenyl Phenyl Ether	0.22 U	0.21 U	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	0.2 U	0.24 U	0.3 U	0.24 U	0.21 U	0.32 U
4-Chloroaniline	0.43 U	0.4 U	0.47 U	0.42 U	0.58 U	0.54 U	0.46 U	0.4 U	0.46 U	0.57 U	0.46 U	0.41 U	0.62 U
4-Chlorophenyl Phenyl Ether	0.22 U	0.21 U	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	0.2 U	0.24 U	0.3 U	0.24 U	0.21 U	0.32 U
Acenaphthene	0.0091	0.015	0.0017 J	0.0012 J	0.0058 U	0.0054 U	0.0046 U	0.041	0.015	0.0085	0.0087	0.0041 U	0.0062 U
Acenaphthylene	0.02	0.022	0.0051	0.0032 J	0.0058 U	0.0054 U	0.0046 U	0.024	0.02	0.018	0.01	0.0019 J	0.0054 J
Acetophenone	0.43 U	0.4 U	0.47 U	0.42 U	0.58 U	0.54 U	0.46 U	0.4 U	0.46 U	0.57 U	0.46 U	0.41 U	0.62 U
Anthracene	0.044	0.1	0.0089	0.0047	0.0058 U	0.0054 U	0.0046 U	0.15	0.051	0.036	0.026	0.0039 J	0.0058 J
Benzaldehyde	0.43 U	0.4 U	0.47 U	0.42 U	0.58 U	0.54 U	0.46 U	0.4 U	0.46 U	0.57 U	0.46 U	0.41 U	0.62 U
Benzo(A)Anthracene	0.27	0.4	0.034	0.019	0.002 J	0.0054 U	0.0046 U	0.5	0.39	0.19	0.12	0.015	0.026
Benzo(A)Pyrene	0.25	0.28	0.032	0.02	0.0058 U	0.0054 U	0.0046 U	0.42	0.37	0.16	0.094	0.013	0.03
Benzo(B)Fluoranthene	0.31	0.33	0.046	0.026	0.0058 U	0.0054 U	0.0046 U	0.46	0.4	0.24	0.13	0.018	0.045
Benzo(G,H,I)Perylene	0.14	0.15	0.017	0.012	0.0058 U	0.0054 U	0.0046 U	0.24	0.11	0.089	0.038	0.0057	0.017
Benzo(K)Fluoranthene	0.11	0.11	0.018	0.0089	0.0058 U	0.0054 U	0.0046 U	0.15	0.073	0.076	0.04	0.0053	0.017
Benzyl Butyl Phthalate	0.22 U	0.21 U	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	0.044 J	0.24 U	0.3 U	0.24 U	0.21 U	0.32 U
Bis(2-Ethylhexyl) Phthalate	1.4	0.053 J	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	6.2	2.2	0.3 U	0.24 U	0.21 U	0.32 U
Carbazole	0.43 U	0.4 U	0.47 U	0.42 U	0.58 U	0.54 U	0.46 U	0.4 U	0.46 U	0.57 U	0.46 U	0.41 U	0.62 U
Chrysene	0.25	0.35	0.028	0.015	0.0016 J	0.0054 U	0.0046 U	0.54	0.44	0.14	0.09	0.011	0.025
Dibenz(A,H)Anthracene	0.037	0.046	0.0061	0.0037 J	0.0058 U	0.0054 U	0.0046 U	0.066	0.049	0.026	0.016	0.0023 J	0.0058 J
Dibenzofuran	0.22 U	0.21 U	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	0.2 U	0.24 U	0.3 U	0.24 U	0.21 U	0.32 U
Diethyl Phthalate	0.22 U	0.21 U	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	0.2 U	0.24 U	0.3 U	0.24 U	0.21 U	0.32 U
Dimethyl Phthalate	0.35	0.36	0.43	0.18 J	0.54	0.35	0.42	0.28	0.46	0.78	0.54	0.38	0.73
Di-N-Butyl Phthalate	0.22 U	0.21 U	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	0.2 U	0.24 U	0.3 U	0.24 U	0.21 U	0.32 U
Di-N-Octylphthalate	0.43 U	0.4 U	0.47 U	0.42 U	0.58 U	0.54 U	0.46 U	0.4 U	0.46 U	0.57 U	0.46 U	0.41 U	0.62 U
Fluoranthene	0.37 J	0.5	0.05	0.025	0.0026 J	0.0023 J	0.0046 U	0.78 J	0.32	0.29	0.19	0.019	0.046
Fluorene	0.011	0.017	0.0022 J	0.0012 J	0.0058 U	0.0054 U	0.0046 U	0.039	0.014	0.0098	0.008	0.0011 J	0.0016 J
Hexachlorobenzene	0.22 U	0.21 U	0.24 U	0.21 U	0.3 U	0.28 U	0.24 U	0.2 U	0.24 U	0.3 U	0.24 U	0.21 U	0.32 U
Indeno(1,2,3-C,D)Pyrene	0.12	0.13	0.018	0.011	0.0058 U	0.0054 U	0.0046 U	0.18	0.092	0.09	0.043	0.0063	0.018
Naphthalene	0.0053	0.0076	0.0014 J	0.0013 J	0.0058 U	0.0054 U	0.0046 U	0.012	0.0085	0.0054 J	0.0032 J	0.0041 U	0.0062 U
Pentachlorophenol	0.0087 U	0.0081 U	0.0095 U	0.0084 U	0.012 U	0.011 U	0.0094 U	0.0081 U	0.0093 U	0.012 U	0.0094 U	0.0084 U	0.013 U
Phenanthrene	0.22	0.34	0.027	0.014	0.0058 U	0.0054 U	0.0046 U	0.62	0.28	0.15	0.13	0.012	0.02
Phenol	0.43 U	0.4 U	0.47 U	0.42 U	0.58 U	0.54 U	0.46 U	0.4 U	0.46 U	0.57 U	0.06 J	0.053 J	0.11 J
Pyrene	0.39	0.59	0.049	0.029	0.0028 J	0.0023 J	0.0046 U	0.89	0.63	0.34	0.19	0.022	0.044

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 06 T09 OU3-R6-T09E- S06-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S06-Z2 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S07-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S07-Z2 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S08-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6- T09E2-FD 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S08-Z2 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S10-Z1 7/25/2019	Phase IIA 06 T09 OU3-R6-T09E- S10-Z2 7/25/2019	Phase IIA 07 T11 OU3-R7- T11W-S06-Z1 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S06-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S06-Z3 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S07-Z1 7/26/2019
PAH Mixtures ⁽¹⁾	2.5613 J	3.3946	0.3457 J	0.1964 J	0.009 J	0.0046 J	0.0046 U	5.125 J	3.2697	1.8727 J	1.1398 J	0.1365 J	0.3066 J
PAH, Total HMW ⁽¹⁾	2.247 J	2.886	0.2981	0.1696 J	0.009 J	0.0046 J	0.0046 U	4.226 J	2.874	1.641	0.951	0.1176 J	0.2738 J
PAH, Total LMW ⁽¹⁾	0.3143	0.5086	0.0476 J	0.0268 J	0.0058 U	0.0054 U	0.0046 U	0.899	0.3957	0.2317 J	0.1888 J	0.0189 J	0.0328 J
Metals (mg/kg)													
Antimony	1	1.1	1 U	0.93 U	1.3 U	1.2 U	0.98 U	0.97	1 U	1.2 U	1 U	0.93 U	1.3 U
Arsenic	5.3	5.9	3.8	3.4	5.4	5	6.7	5.4	4	5.9	6.2	2.5	6.1
Barium	153	158	115	123	141	113	101	155	135	168	174	156	140
Beryllium	0.5	0.48	0.56	0.52	1.2	1	0.93	0.45	0.5 U	0.63	0.59	0.55	0.65 U
Cadmium	1.5	1.1	0.51 U	0.46 U	0.65 U	0.61 U	0.49 U	0.95	0.98	1.5	1.2	0.48	0.96
Chromium, Total	86.3	62.3	25.9	18.2	26.6	21.8	21.8	39.6	51	77.5	56.4	11.4	52.9
Cobalt	10.1	9.1	7.8	8.8	13.7	11.1	11.3	8.1	8.2	10.5	10.3	10	11.3
Copper	201	170	47.5	26.5	38.2	34.4	34	132	133	182	148	17.8	115
Lead	293	242	69.5	45.8	15.9	11.6	10.3	172	163	266	232	10.7	174
Manganese	609	519	450	789	240	240	242	480	531	822	873	1270	1270
Nickel	52.8	39.5	21.1	16.5	35.4	28.1	27.9	28.1	31.7	54.1	41.7	17.2	45.8
Selenium	0.51 J	0.39 J	0.3 J	0.23 J	0.82 J	0.35 J	0.53 J	0.35 J	0.49 J	0.59 J	0.39 J	0.22 J	0.69 J
Silver	1.1	0.95	0.51 U	0.46 U	0.65 U	0.61 U	0.49 U	0.71	0.75	1.2	0.82	0.46 U	0.82
Vanadium	17.4	15.2	17.6	16.7	37.1	31.6	33.1	13.1	13.4	20.9	18.4	13.8	19
Zinc	609	458	142	85.8	84.7	68.4	60.5	323	362	566	411	69.2	400
Mercury (mg/kg)													
Mercury	0.98	1.5	0.26	0.28	0.15 U	0.14 U	0.12 U	1.2	0.85	1	1.4	0.82	0.47

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIA 07 T11 OU3-R7- T11W-S07-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S07-Z3 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S08-Z1 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-FD 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S08-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S08-Z3 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S09-Z1 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S09-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S09-Z3 7/26/2019
Analytes									
PCB Aroclor (mg/kg)									
PCB-1248 (Aroclor 1248)	0.005 J	0.042 U	0.0051 J	0.0064 J	0.039 U	0.05 U	0.006 J	0.0077 J	0.067 U
PCB-1254 (Aroclor 1254)	0.0057 J	0.042 U	0.0069 J	0.0088 J	0.039 U	0.05 U	0.0094 J	0.013 J	0.067 U
PCB-1260 (Aroclor 1260)	0.041 U	0.042 U	0.04 U	0.042 U	0.039 U	0.05 U	0.043 U	0.058 U	0.067 U
PCB, Total ⁽¹⁾	0.0107 J	0.042 U	0.012 J	0.0152 J	0.039 U	0.05 U	0.0154 J	0.0207 J	0.067 U
SVOCs + PAHs (mg/kg)									
2-Methylnaphthalene	0.0012 J	0.0042 U	0.00097 J	0.0011 J	0.002 J	0.0049 U	0.0025 J	0.0032 J	0.02
4-Bromophenyl Phenyl Ether	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
4-Chloroaniline	0.41 U	0.42 U	0.4 U	0.42 U	0.39 U	0.49 U	0.43 U	0.58 U	0.67 U
4-Chlorophenyl Phenyl Ether	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
Acenaphthene	0.0015 J	0.0014 J	0.0013 J	0.0013 J	0.0017 J	0.0049 U	0.0028 J	0.0033 J	0.049
Acenaphthylene	0.0054	0.0014 J	0.0045	0.0048	0.0061	0.0023 J	0.0097	0.012	0.018
Acetophenone	0.41 U	0.42 U	0.4 U	0.42 U	0.39 U	0.49 U	0.43 U	0.58 U	0.67 U
Anthracene	0.0066	0.0034 J	0.0065	0.0064	0.0076	0.0038 J	0.014	0.017	0.15
Benzaldehyde	0.41 U	0.42 U	0.4 U	0.42 U	0.39 U	0.49 U	0.43 U	0.58 U	0.67 U
Benzo(A)Anthracene	0.031	0.0066	0.029	0.027	0.033	0.012	0.064	0.074	0.17
Benzo(A)Pyrene	0.031	0.0056	0.034	0.032	0.035	0.011	0.068	0.077	0.084
Benzo(B)Fluoranthene	0.046	0.0079	0.056	0.052	0.055	0.017	0.11	0.091	0.12
Benzo(G,H,I)Perylene	0.016	0.0029 J	0.02	0.018	0.019	0.0056	0.048	0.041	0.039
Benzo(K)Fluoranthene	0.015	0.0029 J	0.015	0.015	0.017	0.0062	0.044	0.04	0.056
Benzyl Butyl Phthalate	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
Bis(2-Ethylhexyl) Phthalate	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
Carbazole	0.41 U	0.42 U	0.4 U	0.42 U	0.39 U	0.49 U	0.43 U	0.58 U	0.67 U
Chrysene	0.022	0.0048	0.029	0.027	0.03	0.011	0.065	0.066	0.1
Dibenz(A,H)Anthracene	0.0061	0.0042 U	0.0066	0.0063	0.0077	0.0022 J	0.016	0.016	0.019
Dibenzofuran	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
Diethyl Phthalate	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
Dimethyl Phthalate	0.39	0.37	0.34	0.48	0.49	0.53	0.48	0.45	0.72
Di-N-Butyl Phthalate	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
Di-N-Octylphthalate	0.41 U	0.42 U	0.4 U	0.42 U	0.39 U	0.49 U	0.43 U	0.58 U	0.67 U
Fluoranthene	0.047	0.01	0.053	0.049	0.053	0.02	0.11	0.14	0.3
Fluorene	0.0018 J	0.0014 J	0.0016 J	0.0016 J	0.0022 J	0.0049 U	0.0035 J	0.0044 J	0.056
Hexachlorobenzene	0.21 U	0.22 U	0.21 U	0.22 U	0.2 U	0.25 U	0.22 U	0.3 U	0.34 U
Indeno(1,2,3-C,D)Pyrene	0.018	0.0027 J	0.021	0.02	0.021	0.0064	0.052	0.047	0.047
Naphthalene	0.0016 J	0.0042 U	0.0013 J	0.0012 J	0.0023 J	0.0049 U	0.0032 J	0.0042 J	0.015
Pentachlorophenol	0.0082 U	0.0085 U	0.0081 U	0.0085 U	0.008 U	0.01 U	0.0088 U	0.012 U	0.014 U
Phenanthrene	0.022	0.0099	0.023	0.021	0.027	0.012	0.049	0.06	0.39
Phenol	0.062 J	0.061 J	0.054 J	0.076 J	0.069 J	0.091 J	0.087 J	0.078 J	0.13 J
Pyrene	0.044	0.0092	0.05	0.046	0.049	0.018	0.11	0.14	0.27

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 07 T11 OU3-R7- T11W-S07-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S07-Z3 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S08-Z1 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-FD 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S08-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S08-Z3 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S09-Z1 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S09-Z2 7/26/2019	Phase IIA 07 T11 OU3-R7- T11W-S09-Z3 7/26/2019
PAH Mixtures ⁽¹⁾	0.3162 J	0.0701 J	0.35277 J	0.3297 J	0.3686 J	0.1275 J	0.7717 J	0.8361 J	1.903
PAH, Total HMW ⁽¹⁾	0.2761	0.0526 J	0.3136	0.2923	0.3197	0.1094 J	0.687	0.732	1.205
PAH, Total LMW ⁽¹⁾	0.0401 J	0.0175 J	0.03917 J	0.0374 J	0.0489 J	0.0181 J	0.0847 J	0.1041 J	0.698
Metals (mg/kg)									
Antimony	0.92 U	0.9 U	0.87 U	0.93 U	0.86 U	1.1 U	0.97 U	1.2 U	1.4 UJ
Arsenic	4.7	3	4.4	4.5	4.5	4.2	4.8	7.2	8.2 J
Barium	101	116	145	148	150	109	153	240	285 J
Beryllium	0.49	0.54	0.63	0.65	0.63	0.71	0.62	1	1.3 J
Cadmium	0.66	0.45 U	0.63	0.68	0.49	0.55 U	0.88	1.3	0.92 J
Chromium, Total	39.8	15.5	22.4	22.5	16.4	16.4	42	51.9	35.2 J
Cobalt	9.2	8.8	8.8	8.6	9	15.7	9.1	13.4	17.9 J
Copper	84.2	26.3	49.5	49.7	38	29.2	84.7	110	75.1 J
Lead	130	30.7	67.3	65	48.2	21.8	124	174	109 J
Manganese	503	642	1070	1030	1140	1540	842	1490	1740 J
Nickel	36.2	18.4	22.2	21.5	18.9	18.3	28.4	40.9	35.7 J
Selenium	2.3 U	0.32 J	0.35 J	0.39 J	0.62 J	0.44 J	0.47 J	0.68 J	0.82 J
Silver	0.46 U	0.45 U	0.43 U	0.46 U	0.43 U	0.55 U	0.6	0.78	0.72 UJ
Vanadium	14.8	14.8	16.3	16.4	16.1	21	18.3	25.6	30 J
Zinc	276	93.9	148	144	102	87.5	266	316	209 J
Mercury (mg/kg)									
Mercury	0.32	0.12 U	0.37	0.35	0.36	0.13 U	0.55	0.93	0.51 J

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 07 T12 OU3-R7-T12E- S03-Z3 7/17/2019	Phase IIA 07 T12 OU3-R7-T12E- S04-Z3 7/17/2019	Phase IIA 07 T12 OU3-R7-T12E- S05-Z1 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S05-Z2 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S05-Z3 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S06-Z1 7/15/2019	Phase IIA 07 T12 OU3-R7-T12E- S06-Z2 7/15/2019	Phase IIA 07 T12 OU3-R7-T12E- S06-Z3 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S07-Z1 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S07-Z2 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S07-Z3 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S08-Z1 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S08-Z2 7/16/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.056 U	0.031 J	0.089 U	0.079 U	0.047 U	0.056 U	0.042 U	0.043 U	0.047 U	0.038 U	0.041 U	0.047 U	0.041 U
PCB-1254 (Aroclor 1254)	1.2	0.038 U	0.089 U	0.019 J	0.047 U	1.8	0.087	0.06	2.5	0.055	0.44	20	2.7
PCB-1260 (Aroclor 1260)	0.3	0.038 U	0.089 U	0.079 U	0.047 U	0.49	0.042 U	0.043 U	0.93	0.038 U	0.1	6.1	0.9
PCB, Total ⁽¹⁾	1.5	0.031 J	0.089 U	0.019 J	0.047 U	2.29	0.087	0.06	3.43	0.055	0.54	26.1	3.6
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0068	0.0013 J	0.0051 J	0.0023 J	0.0021 J	0.013	0.016	0.002 J	0.018	0.0066	0.012	0.032	0.009
4-Bromophenyl Phenyl Ether	0.29 U	0.2 U	0.45 U	0.4 U	0.24 U	0.29 U	0.22 U	0.22 U	0.24 U	0.2 U	0.21 U	0.24 U	0.21 U
4-Chloroaniline	0.11 J	0.38 U	0.88 U	0.78 U	0.47 U	0.11 J	0.42 U	0.43 U	0.069 J	0.38 U	0.41 U	0.45 J	0.21 J
4-Chlorophenyl Phenyl Ether	0.29 U	0.2 U	0.45 U	0.4 U	0.24 U	0.29 U	0.22 U	0.22 U	0.24 U	0.2 U	0.21 U	0.24 U	0.21 U
Acenaphthene	0.013	0.0038 U	0.011	0.0029 J	0.007	0.0095	0.35	0.0028 J	0.011	0.0068	0.0055	0.015	0.0043
Acenaphthylene	0.013	0.0057	0.015	0.0086	0.0051	0.044	0.022	0.0086	0.087	0.029	0.053	0.094	0.024
Acetophenone	0.56 U	0.38 U	0.18 J	0.78 U	0.47 U	0.17 J	0.18 J	0.43 U	0.052 J	0.38 U	0.1 J	0.12 J	0.075 J
Anthracene	0.037	0.0044	0.032	0.013	0.02	0.045	0.58	0.011	0.096	0.04	0.062	0.094	0.019
Benzaldehyde	0.56 U	0.38 U	0.12 J	0.78 U	0.47 U	0.095 J	0.057 J	0.43 U	0.47 U	0.38 U	0.061 J	0.083 J	0.41 U
Benzo(A)Anthracene	0.17	0.013	0.25	0.067	0.065	0.22	2.6	0.04	0.34	0.18	0.27	0.32	0.098
Benzo(A)Pyrene	0.16	0.012	0.22	0.066	0.055	0.2	2.7	0.043	0.31	0.11	0.16	0.36	0.07
Benzo(B)Fluoranthene	0.25	0.021	0.34	0.088	0.069	0.42	3.4	0.067	0.48	0.2	0.29	0.54	0.11
Benzo(G,H,I)Perylene	0.11	0.007	0.17	0.042	0.029	0.17	1	0.032	0.25	0.077	0.12	0.3	0.072
Benzo(K)Fluoranthene	0.087	0.007	0.12	0.031	0.022	0.1	1.4	0.022	0.16	0.059	0.086	0.14	0.044
Benzyl Butyl Phthalate	0.29 U	0.2 U	0.45 U	0.4 U	0.24 U	0.29 U	0.22 U	0.22 U	0.24 U	0.2 U	0.21 U	0.24 U	0.21 U
Bis(2-Ethylhexyl) Phthalate	0.13 J	0.2 U	0.45 U	0.4 U	0.24 U	0.15 J	0.22 U	0.22 U	0.084 J	0.2 U	0.21 U	0.67	0.075 J
Carbazole	0.56 U	0.38 U	0.88 U	0.78 U	0.47 U	0.57 U	0.13 J	0.43 U	0.47 U	0.38 U	0.41 U	0.46 U	0.41 U
Chrysene	0.19	0.012	0.26	0.061	0.051	0.22	2.7	0.035	0.35	0.13	0.21	0.37	0.068
Dibenz(A,H)Anthracene	0.036	0.0027 J	0.044	0.011	0.009	0.05	0.37	0.0086	0.074	0.024	0.031	0.063	0.018
Dibenzofuran	0.29 U	0.2 U	0.45 U	0.4 U	0.24 U	0.29 U	0.061 J	0.22 U	0.24 U	0.2 U	0.21 U	0.24 U	0.21 U
Diethyl Phthalate	0.29 U	0.2 U	0.45 U	0.4 U	0.24 U	0.29 U	0.22 U	0.22 U	0.24 U	0.2 U	0.21 U	0.24 U	0.21 U
Dimethyl Phthalate	0.28 J	0.092 J	0.68	0.51	0.36	0.36	0.35	0.23	0.28	0.28	0.26	0.26	0.25
Di-N-Butyl Phthalate	0.29 U	0.2 U	0.45 U	0.4 U	0.24 U	0.29 U	0.22 U	0.22 U	0.24 U	0.2 U	0.21 U	0.24 U	0.21 U
Di-N-Octylphthalate	0.56 U	0.38 U	0.88 U	0.78 U	0.47 U	0.57 U	0.42 U	0.43 U	0.47 U	0.38 U	0.41 U	0.46 U	0.41 U
Fluoranthene	0.34	0.024	0.5	0.11	0.11	0.46	3.4 J	0.089	0.63 J	0.38	0.5	0.66 J	0.17
Fluorene	0.014	0.001 J	0.012	0.0046 J	0.0069	0.016	0.19	0.0037 J	0.017	0.011	0.016	0.024	0.0068
Hexachlorobenzene	0.29 U	0.2 U	0.45 U	0.4 U	0.24 U	0.29 U	0.22 U	0.22 U	0.24 U	0.2 U	0.21 U	0.15 J	0.21 U
Indeno(1,2,3-C,D)Pyrene	0.11	0.0082	0.15	0.038	0.027	0.14	1	0.03	0.21	0.073	0.11	0.23	0.063
Naphthalene	0.0068	0.0038 U	0.0067 J	0.0029 J	0.0026 J	0.013	0.017	0.0018 J	0.014	0.0049	0.006	0.026	0.0062
Pentachlorophenol	0.011 U	0.0077 U	0.018 U	0.016 U	0.0095 U	0.011 U	0.0085 U	0.0086 U	0.0096 U	0.0038 J	0.0083 U	0.0094 U	0.0083 U
Phenanthrene	0.2	0.014	0.23	0.052	0.074	0.23	1.8	0.041	0.3	0.22	0.3	0.32	0.088
Phenol	0.56 U	0.38 U	0.11 J	0.78 U	0.47 U	0.078 J	0.062 J	0.43 U	0.47 U	0.042 J	0.052 J	0.052 J	0.053 J
Pyrene	0.35	0.019	0.46	0.11	0.12	0.44	3.2	0.059	0.48	0.29	0.35	0.53	0.14

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 07 T12 OU3-R7-T12E- S03-Z3 7/17/2019	Phase IIA 07 T12 OU3-R7-T12E- S04-Z3 7/17/2019	Phase IIA 07 T12 OU3-R7-T12E- S05-Z1 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S05-Z2 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S05-Z3 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S06-Z1 7/15/2019	Phase IIA 07 T12 OU3-R7-T12E- S06-Z2 7/15/2019	Phase IIA 07 T12 OU3-R7-T12E- S06-Z3 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S07-Z1 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S07-Z2 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S07-Z3 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S08-Z1 7/16/2019	Phase IIA 07 T12 OU3-R7-T12E- S08-Z2 7/16/2019
PAH Mixtures ⁽¹⁾	2.0936	0.1523 J	2.8258 J	0.7103 J	0.6747 J	2.7905	24.745 J	0.4965 J	3.827 J	1.8413	2.5815	4.118 J	1.0103
PAH, Total HMW ⁽¹⁾	1.803	0.1259 J	2.514	0.624	0.557	2.42	21.77 J	0.4256	3.284 J	1.523	2.127	3.513 J	0.853
PAH, Total LMW ⁽¹⁾	0.2906	0.0264 J	0.3118 J	0.0863 J	0.1177 J	0.3705	2.975	0.0709 J	0.543	0.3183	0.4545	0.605	0.1573
Metals (mg/kg)													
Antimony	16.2	0.84 U	1.9 UJ	2.4 J	1 U	9.4	0.88 U	1.4	4.7	0.82 U	0.93 U	14.7	2.9
Arsenic	21.2	5.3	8.8 J	6.1 J	8.1	10.9	6.8	6.1	9.6	6.2	8.4	14.3	6.6
Barium	365	37.2	206 J	242 J	295	232	95.1	75.4	174	69.9	88.5	269	84.4
Beryllium	0.6 U	0.42 U	0.96 UJ	0.83 UJ	0.5 U	0.61 U	0.64	0.56	0.54 U	0.47	0.52	0.52 U	0.45 U
Cadmium	15.6	0.42 U	2.6 J	2.8 J	0.5 U	16.1	1.4	1.6	9.1	0.93	0.52	24.4	5.1
Chromium, Total	2560	14.6	105 J	352 J	36.3	2390	200	244	1650	170	85.1	3250	679
Cobalt	21.9	6.7	12.5 J	10.5 J	8	27.1	9	8.9	21.7	8.8	7.8	33.2	12.8
Copper	811	48.3	320 J	699 J	125	882	122	168	657	147	187	1070	259
Lead	1510	21.1	342 J	1440 J	334	1340	148	174	936	136	301	1800	406
Manganese	1090	450	759 J	509 J	337	590	499	523	562	515	409	581	476
Nickel	502	15.8	61.8 J	144 J	22.1	593	66.2	88.7	422	56.5	30.6	679	189
Selenium	0.94 J	0.4 J	1.2 J	0.97 J	0.51 J	0.88 J	0.48 J	0.53 J	0.79 J	0.41 J	0.44 J	0.87 J	0.52 J
Silver	9.6	0.42 U	3.2 J	4 J	0.6	8.9	0.99	1.3	5	1.1	0.77	11	2.4
Vanadium	480	11.2	25.3 J	35.7 J	14.3	357	39.5	52.9	198	35	15.6	470	117
Zinc	2350	56.3	1100 J	2460 J	240	2970	329	402	1770	256	260	3760	785
Mercury (mg/kg)													
Mercury	3.4	0.1 U	1 J	1.6 J	1.9	1.5	0.37	0.34	2	0.17	0.19	4.8	1.1

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 07 T12 OU3-R7-T12E- S08-Z3 7/16/2019	Phase IIB 07 T12 OU3-R7-T12E- S09-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S09-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S10-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S10-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S11-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S11-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S12-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S12-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- FD2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S13-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S13-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S14-Z1 10/7/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.04 U	0.055 U	0.048 U	0.05 U	0.04 U	0.049 U	0.044 U	0.05 U	0.042 U	0.038 U	0.13 UJ	0.1 U	0.07 U
PCB-1254 (Aroclor 1254)	0.055	19	16 J	13	2.9	12 J	0.48 J+	0.073	0.082 J+	0.039 J+	0.13 UJ	0.1 U	0.058 J
PCB-1260 (Aroclor 1260)	0.04 U	7 J	5.7 J	5.3	1.2 J	6.9 J	0.32 J+	0.05 U	0.042 U	0.038 U	0.13 UJ	0.1 U	0.07 U
PCB, Total ⁽¹⁾	0.055	26 J	21.7 J	18.3 J	4.1 J	18.9 J	0.8 J+	0.073 J	0.082 J+	0.039 J+	0.13 UJ	0.1 U	0.058 J
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0012 J	0.045	0.04	0.01	0.0021 J	0.02	0.0062	0.02	0.023	0.017	0.013 UJ	0.0099 U	0.0038 J
4-Bromophenyl Phenyl Ether	0.2 U	0.29 U	0.25 U	0.26 U	0.21 U	0.25 U	0.22 U	0.26 U	0.21 U	0.2 U	0.67 UJ	0.51 U	0.36 U
4-Chloroaniline	0.4 U	0.48 J	0.39 J	0.076 J	0.4 U	0.21 J	0.44 U	0.5 U	0.42 U	0.38 U	1.3 UJ	0.99 U	0.7 U
4-Chlorophenyl Phenyl Ether	0.2 U	0.29 U	0.25 U	0.26 U	0.21 U	0.25 U	0.22 U	0.26 U	0.21 U	0.2 U	0.67 UJ	0.51 U	0.36 U
Acenaphthene	0.004 U	0.07	0.035	0.0063	0.0011 J	0.011	0.0044	0.03	0.033	0.036	0.013 UJ	0.0099 U	0.013
Acenaphthylene	0.0023 J	0.11	0.052	0.044	0.011	0.037	0.063	0.069	0.095	0.086	0.0041 J	0.0036 J	0.017
Acetophenone	0.4 U	0.55 U	0.48 U	0.5 U	0.4 U	0.49 U	0.44 U	0.5 U	0.42 U	0.38 U	1.3 UJ	0.99 U	0.7 U
Anthracene	0.0023 J	0.17	0.067	0.039	0.011	0.049	0.065	0.12	0.22	0.18	0.0041 J	0.0035 J	0.044
Benzaldehyde	0.4 U	0.55 U	0.48 U	0.5 U	0.4 U	0.49 U	0.44 U	0.5 U	0.42 U	0.38 U	1.3 UJ	0.99 U	0.7 U
Benzo(A)Anthracene	0.0094	0.67	0.26	0.14	0.039	0.17	0.23	0.74	0.74	0.61	0.021 J	0.015	0.3
Benzo(A)Pyrene	0.01	0.75	0.28	0.16	0.04	0.19	0.16	0.7	0.64	0.54	0.025 J	0.017	0.4
Benzo(B)Fluoranthene	0.016	1.1	0.39	0.26	0.069	0.34	0.28	0.98	0.89	0.73	0.045 J	0.029	0.58
Benzo(G,H,I)Perylene	0.0085	0.68	0.27	0.11	0.027	0.25	0.13	0.47	0.42	0.34	0.018 J	0.011	0.21
Benzo(K)Fluoranthene	0.0051	0.35	0.11	0.083	0.024	0.12	0.1	0.32	0.31	0.3	0.011 J	0.0077 J	0.21
Benzyl Butyl Phthalate	0.2 U	0.077 J	0.25 UJ	0.26 UJ	0.21 UJ	0.25 UJ	0.22 UJ	0.26 UJ	0.21 UJ	0.2 UJ	0.67 UJ	0.51 UJ	0.36 UJ
Bis(2-Ethylhexyl) Phthalate	0.2 U	0.44	0.18 J	0.12 J	0.21 U	0.089 J	0.22 U	0.26 U	0.21 U	0.2 U	0.67 UJ	0.51 U	0.36 U
Carbazole	0.4 U	0.11 J	0.061 J	0.5 U	0.4 U	0.49 U	0.44 U	0.11 J	0.11 J	0.073 J	1.3 UJ	0.99 U	0.7 U
Chrysene	0.0091	0.74	0.28	0.13	0.035	0.16	0.23	0.79	0.72	0.6	0.025 J	0.016	0.44
Dibenz(A,H)Anthracene	0.0021 J	0.12	0.053	0.028	0.0072	0.049	0.033	0.071	0.13 J	0.1 J	0.0037 J	0.0024 J	0.056
Dibenzofuran	0.2 U	0.29 U	0.25 U	0.26 U	0.21 U	0.25 U	0.22 U	0.26 U	0.045 J	0.2 U	0.67 UJ	0.51 U	0.36 U
Diethyl Phthalate	0.2 U	0.29 U	0.25 U	0.26 U	0.21 U	0.25 U	0.22 U	0.26 U	0.21 U	0.2 U	0.67 UJ	0.51 U	0.36 U
Dimethyl Phthalate	0.24	0.5	0.47	0.33	0.3	0.36	0.28	0.52	0.35	0.23	0.88 J	0.63	0.54
Di-N-Butyl Phthalate	0.2 U	0.29 U	0.25 U	0.26 U	0.21 U	0.25 U	0.22 U	0.26 U	0.21 U	0.2 U	0.67 UJ	0.51 U	0.36 U
Di-N-Octylphthalate	0.4 U	0.55 U	0.48 U	0.5 U	0.4 U	0.49 U	0.44 U	0.5 U	0.42 U	0.38 U	1.3 UJ	0.99 U	0.7 U
Fluoranthene	0.018	1.4	0.56	0.29	0.079	0.3	0.55	1.6	1.7	1.3	0.048 J	0.028	0.79
Fluorene	0.004 U	0.063	0.032	0.0098	0.0032 J	0.019	0.029	0.058	0.074	0.073	0.013 UJ	0.0029 J	0.014
Hexachlorobenzene	0.2 U	0.23 J	0.15 J	0.26 U	0.21 U	0.085 J	0.22 U	0.26 U	0.21 U	0.2 U	0.67 UJ	0.51 U	0.36 U
Indeno(1,2,3-C,D)Pyrene	0.0073	0.54	0.14	0.1	0.026	0.16	0.11	0.43	0.39	0.33	0.016 J	0.0095 J	0.2
Naphthalene	0.004 U	0.065	0.045	0.01	0.0017 J	0.03	0.011	0.015	0.018	0.013	0.013 UJ	0.0099 U	0.0051 J
Pentachlorophenol	0.0081 U	0.0041 J	0.0029 J	0.01 U	0.0082 U	0.0047 J	0.0089 U	0.01 U	0.0085 U	0.0077 U	0.026 UJ	0.02 U	0.014 U
Phenanthrene	0.0092	0.84	0.41	0.16	0.052	0.22	0.37	0.98	1.1	0.85	0.022 J	0.019	0.26
Phenol	0.4 U	0.17 J	0.16 J	0.11 J	0.1 J	0.13 J	0.11 J	0.19 J	0.13 J	0.088 J	0.37 J	0.24 J	0.22 J
Pyrene	0.016	1.2	0.48	0.27	0.063	0.29	0.41	1.3	1.3	1.1	0.049 J	0.034	0.73

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 07 T12 OU3-R7-T12E- S08-Z3 7/16/2019	Phase IIB 07 T12 OU3-R7-T12E- S09-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S09-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S10-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S10-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S11-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S11-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S12-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S12-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- FD2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S13-Z1 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S13-Z2 10/7/2019	Phase IIB 07 T12 OU3-R7-T12E- S14-Z1 10/7/2019
PAH Mixtures ⁽¹⁾	0.1165 J	8.913	3.504	1.8501	0.4913 J	2.415	2.7816	8.693	8.803 J	7.205 J	0.2919 J	0.1986 J	4.2729 J
PAH, Total HMW ⁽¹⁾	0.1015 J	7.55	2.823	1.571	0.4092	2.029	2.233	7.401	7.24 J	5.95 J	0.2617 J	0.1696 J	3.916
PAH, Total LMW ⁽¹⁾	0.015 J	1.363	0.681	0.2791	0.0821 J	0.386	0.5486	1.292	1.563	1.255	0.0302 J	0.029 J	0.3569 J
Metals (mg/kg)													
Antimony	0.84 U	18.4	11.3	12.8	2	6.7 J	0.92 U	1.1 U	0.95 U	0.86 U	0.87 UJ	2.2 UJ	1.5 UJ
Arsenic	3.3	15.4	10.8	12.3	6.9	7.4	5.9	9.3	13.5	16.4	5.6 J	7.3 J	7.3 J
Barium	36.7	364	208	258	82.4	155 J	69.6	221	239	165	183 J	249 J	172 J
Beryllium	0.42 U	0.61 U	0.51 U	0.53 U	0.51	0.55 U	0.47	0.62	0.75	0.69	0.6 J	1.1 UJ	0.76 UJ
Cadmium	0.42 U	34.8	18.1	22.1	3.5	8.6 J	1.2	4.4	2.3	1.3	2.1 J	2.2 J	2 J
Chromium, Total	9.7	4320	2090	3200	429	1590	141	446	428	238	93.5 J	180 J	75.8 J
Cobalt	5.5	39.7	23.9	30	10.8	25.5	8.7	9.9	9.2	6.9	10.2 J	11.8 J	9.4 J
Copper	23	1590	793	1050	176	968	155	526	634	277	271 J	353 J	285 J
Lead	30.6	2480	1250	1810	268	847	107	491	473	233	334 J	714 J	322 J
Manganese	393	453	477	412	518	349	487	449	355	417	592 J	572 J	1130 J
Nickel	20.6	1040	547	638	117	322	75.1	122	110	58.6	64 J	108 J	44 J
Selenium	0.43 J	1.1 J	0.89 J	1 J	0.61 J	0.82 J	0.78 J	1.4 J	0.94 J	0.77 J	1.2 J	1.6 J	1.6 J
Silver	0.42 U	16.4	8.8	12	1.8	5.5 J	0.76	4.6	4.7	2.1	1.8 J	2 J	2.1 J
Vanadium	10.5	601	363	416	81.7	122	28.8	38.7	26.8	21.5	22.6 J	31.5 J	18.3 J
Zinc	78.7	5140	2580	3470	499	3000	387	1020	709	374	859 J	1490 J	929 J
Mercury (mg/kg)													
Mercury	0.11 U	4.1	4.4	3.3	0.85	2.9 J-	0.15	1.1	0.16	0.14	0.65 J	1.4 J	0.66 J

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T12 OU3-R7-T12E- S14-Z2 10/7/2019	Phase IIA 07 T14 OU3-R7-T14E- S01-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S01-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S01-Z3 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S02-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S02-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S02-Z3 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S03-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S03-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S03-Z3 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S04-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S04-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S04-Z3 7/25/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.065 U	0.28 J	0.4	2.2	0.14	0.15	0.029 J	0.031 J	0.049 J	0.019 J-	0.03 J	0.031 J	0.049 U
PCB-1254 (Aroclor 1254)	0.071	0.28 J	0.5	1.9	0.27	0.16	0.034 J	0.043 J	0.065 J	0.029 J-	0.038 J	0.052 J	0.049 U
PCB-1260 (Aroclor 1260)	0.065 U	0.053 U	0.23	0.056 U	0.061 U	0.055 U	0.058 U	0.072 U	0.074 U	0.054 UJ	0.07 U	0.07 U	0.049 U
PCB, Total ⁽¹⁾	0.071 J	0.56 J	1.13	4.1	0.41	0.31	0.063 J	0.074 J	0.114 J	0.048 J-	0.068 J	0.083 J	0.049 U
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0065 U	0.015	0.022	0.015	0.0071	0.017	0.0024 J	0.0047 J	0.004 J	0.0024 J	0.0034 J	0.0029 J	0.005 U
4-Bromophenyl Phenyl Ether	0.33 U	0.27 U	0.25 U	0.29 U	0.31 U	0.28 U	0.3 U	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
4-Chloroaniline	0.65 U	0.53 U	0.49 U	0.56 U	0.61 U	0.55 U	0.57 U	0.72 U	0.74 U	0.54 U	0.7 U	0.7 U	0.5 U
4-Chlorophenyl Phenyl Ether	0.33 U	0.27 U	0.25 U	0.29 U	0.31 U	0.28 U	0.3 U	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
Acenaphthene	0.0014 J	0.054	0.08	0.038	0.023	0.045	0.0075	0.015	0.011	0.0036 J	0.011	0.0076	0.005 U
Acenaphthylene	0.0036 J	0.079	0.097	0.056	0.039	0.059	0.012	0.015	0.013	0.0085	0.01	0.0082	0.002 J
Acetophenone	0.65 U	0.53 U	0.49 U	0.56 U	0.61 U	0.55 U	0.57 U	0.72 U	0.74 U	0.54 U	0.7 U	0.7 U	0.5 U
Anthracene	0.0049 J	0.21	0.29 J	0.26	0.089	0.16	0.028	0.037	0.03	0.012	0.028	0.021	0.0047 J
Benzaldehyde	0.65 U	0.53 U	0.49 U	0.56 U	0.61 U	0.55 U	0.57 U	0.72 U	0.74 U	0.54 U	0.7 U	0.7 U	0.5 U
Benzo(A)Anthracene	0.024	0.96	1.3	0.69	0.61	0.74	0.11	0.27	0.2	0.067	0.21	0.2	0.018
Benzo(A)Pyrene	0.021	1	1.3	0.59	0.69	0.76	0.082	0.42	0.22	0.069	0.24	0.21	0.017
Benzo(B)Fluoranthene	0.032	1.4	1.7	0.7	1	1.1	0.12	0.64	0.44	0.085	0.45	0.33	0.022
Benzo(G,H,I)Perylene	0.012	0.77	0.91	0.44	0.57	0.54	0.084	0.27	0.16	0.049	0.19	0.16	0.0095
Benzo(K)Fluoranthene	0.01	0.53	0.66	0.36	0.36	0.37	0.071	0.24 J	0.13	0.031	0.12	0.1	0.0072
Benzyl Butyl Phthalate	0.33 UJ	0.27 U	0.25 U	0.29 U	0.31 U	0.28 U	0.3 U	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
Bis(2-Ethylhexyl) Phthalate	0.33 U	0.27	0.57	1.2	0.089 J	0.16 J	0.093 J	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
Carbazole	0.65 U	0.11 J	0.15 J	0.059 J	0.085 J	0.1 J	0.57 U	0.72 U	0.74 U	0.54 U	0.7 U	0.7 U	0.5 U
Chrysene	0.022	1.1	1.4	0.72	0.81	0.87	0.086	0.45	0.24	0.072	0.28	0.25	0.014
Dibenz(A,H)Anthracene	0.0031 J	0.21	0.25	0.14	0.11	0.14	0.024	0.075	0.052	0.014	0.056	0.039	0.0028 J
Dibenzofuran	0.33 U	0.27 U	0.25 U	0.29 U	0.31 U	0.28 U	0.3 U	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
Diethyl Phthalate	0.33 U	0.27 U	0.25 U	0.29 U	0.31 U	0.28 U	0.3 U	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
Dimethyl Phthalate	0.35	0.58	0.41	0.4	0.54	0.41	0.37	0.72	0.61	0.59	0.56	0.75	0.36
Di-N-Butyl Phthalate	0.33 U	0.27 U	0.25 U	0.13 J	0.31 U	0.28 U	0.3 U	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
Di-N-Octylphthalate	0.65 U	0.53 U	0.49 U	0.56 U	0.61 U	0.55 U	0.57 U	0.72 U	0.74 U	0.54 U	0.7 U	0.7 U	0.5 U
Fluoranthene	0.042	1.9 J	2.3 J	1.1 J	1.4 J	1.5 J	0.19	0.61	0.42	0.12	0.49	0.43	0.024
Fluorene	0.0017 J	0.06	0.085	0.046	0.025	0.051	0.0083	0.015	0.012	0.0052 J	0.012	0.0084	0.005 U
Hexachlorobenzene	0.33 U	0.27 U	0.25 U	0.29 U	0.31 U	0.28 U	0.3 U	0.37 U	0.38 U	0.28 U	0.36 U	0.36 U	0.26 U
Indeno(1,2,3-C,D)Pyrene	0.011	0.64	0.8	0.39	0.47	0.48	0.076	0.24 J	0.14	0.042	0.15	0.14	0.0086
Naphthalene	0.0065 U	0.019	0.027	0.018	0.01	0.023	0.0034 J	0.0071 J	0.0061 J	0.0039 J	0.0052 J	0.0046 J	0.005 U
Pentachlorophenol	0.013 U	0.011 U	0.01 U	0.0095 J	0.012 U	0.011 U	0.012 U	0.015 U	0.015 U	0.0018 J	0.014 U	0.014 U	0.01 U
Phenanthrene	0.023	0.86	1.2	0.64	0.53	0.71	0.1	0.23	0.17	0.065	0.18	0.18	0.014
Phenol	0.13 J	0.53 U	0.062 J	0.058 J	0.07 J	0.069 J	0.57 U	0.073 J	0.74 U	0.093 J	0.078 J	0.11 J	0.5 U
Pyrene	0.048	1.7	2.1	1.2	1.2	1.3	0.19	0.68	0.5	0.12	0.49	0.43	0.028

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T12 OU3-R7-T12E- S14-Z2 10/7/2019	Phase IIA 07 T14 OU3-R7-T14E- S01-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S01-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S01-Z3 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S02-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S02-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S02-Z3 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S03-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S03-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S03-Z3 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S04-Z1 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S04-Z2 7/25/2019	Phase IIA 07 T14 OU3-R7-T14E- S04-Z3 7/25/2019
PAH Mixtures ⁽¹⁾	0.2597 J	11.507 J	14.521 J	7.403 J	7.9431 J	8.865 J	1.1946 J	4.2188 J	2.7481 J	0.7696 J	2.9256 J	2.5217 J	0.1718 J
PAH, Total HMW ⁽¹⁾	0.2251 J	10.21 J	12.72 J	6.33 J	7.22 J	7.8 J	1.033	3.895 J	2.502	0.669	2.676	2.289	0.1511 J
PAH, Total LMW ⁽¹⁾	0.0346 J	1.297	1.801 J	1.073	0.7231	1.065	0.1616 J	0.3238 J	0.2461 J	0.1006 J	0.2496 J	0.2327 J	0.0207 J
Metals (mg/kg)													
Antimony	2.4	1.9	2.3	3.5	1.4 U	1.8	2.2	1.6 UJ	1.9 J	1.2 U	1.6 UJ	1.7 J	1.1 U
Arsenic	10.6	7.7	7.3	12.6	7.5	6.5	6.2	8.9 J	8.9 J	5.6	6.3 J	8.1 J	9.3
Barium	189	170	146	410	178	158	182	185 J	182 J	261	167 J	187 J	242
Beryllium	0.73 U	0.58 U	0.56 U	0.6 U	0.69 U	0.61 U	0.6 U	0.8 UJ	0.79 UJ	0.61 U	0.79 UJ	0.76 UJ	0.66
Cadmium	4.9	2.7	3.4	2.5	2.4	3	5.2	3.3 J	5.5 J	1.7	2 J	4.2 J	1.2
Chromium, Total	410	114	145	62.3	117	137	214	89.7 J	147 J	51.3	64.4 J	194 J	38.5
Cobalt	14.5	10.6	10.2	10.9	10.4	10.2	9.4	11.5 J	10.6 J	9.8	8.8 J	10.8 J	10.4
Copper	708	371	415	318	308	332	664	287 J	398 J	190	231 J	461 J	108
Lead	1380	493	601	697	465	442	1080	314 J	453 J	232	243 J	683 J	194
Manganese	1090	995	825	1190	1210	902	390	938 J	398 J	262	859 J	621 J	523
Nickel	173	67.8	85.6	53.6	57.7	73.3	117	54.8 J	78.2 J	49	39.8 J	109 J	33.2
Selenium	1.5 J	1.1 J	1 J	0.54 J	1.2 J	0.9 J	0.84 J	1.2 J	1.3 J	0.64 J	1 J	1.3 J	0.57 J
Silver	3.1	3	3.3	1.7	3.2	3.6	5.5	3 J	4.9 J	1.2	2 J	3.9 J	0.79
Vanadium	46.4	20.3	20.9	19.2	21.1	20.3	33.1	22.1 J	26.3 J	17	17.3 J	28.3 J	18.9
Zinc	3140	1130	1450	720	1090	1120	2370	985 J	1440 J	600	750 J	1580 J	260
Mercury (mg/kg)													
Mercury	1.6	1.4	1.5	3.3	0.81	1.2	1.3	0.81 J	1.2 J	2.7	0.74 J	1.1 J	1.9

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Analytes	Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIA 07 T14 OU3-R7-T14E- S05-Z1 7/16/2019	Phase IIA 07 T14 OU3-R7-T14E- FD 7/16/2019	Phase IIA 07 T14 OU3-R7-T14E- S05-Z2 7/16/2019	Phase IIA 07 T14 OU3-R7-T14E- S05-Z3 7/16/2019	Phase IIB 07 T15 OU3-R7-T15E- S01-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S01-Z2 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S02-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S02-Z2 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- FD 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S03-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S03-Z2 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S04-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S04-Z2 10/3/2019
PCB Aroclor (mg/kg)														
PCB-1248 (Aroclor 1248)		0.016 J-	0.013 J-	0.049 U	0.044 U	0.99	0.79	0.045 U	0.043 U	0.042 U	1	4.2	0.042 U	0.042 U
PCB-1254 (Aroclor 1254)		0.019 J-	0.017 J-	0.049 U	0.0076 J	1.5	1.2	0.045 U	0.043 U	0.042 U	0.94	6.3	0.042 U	0.042 U
PCB-1260 (Aroclor 1260)		0.066 UJ	0.062 UJ	0.049 U	0.044 U	0.053 U	0.057 U	0.045 U	0.043 U	0.042 U	0.54 J	0.052 U	0.042 U	0.042 U
PCB, Total ⁽¹⁾		0.035 J-	0.03 J-	0.049 U	0.0076 J	2.49 J	1.99 J	0.045 U	0.043 U	0.042 U	2.48 J	10.5 J	0.042 U	0.042 U
SVOCs + PAHs (mg/kg)														
2-Methylnaphthalene		0.0032 J	0.0025 J	0.0049 U	0.0015 J	0.035	0.039	0.015	0.0012 J	0.0012 J	0.04	0.053	0.0042 U	0.0042 U
4-Bromophenyl Phenyl Ether		0.34 U	0.32 U	0.25 U	0.23 U	0.27 U	0.29 U	0.23 U	0.22 U	0.22 U	0.27 U	0.27 U	0.22 U	0.22 U
4-Chloroaniline		0.66 U	0.62 U	0.49 U	0.44 U	0.53 U	0.57 U	0.45 U	0.43 U	0.42 U	0.52 U	0.52 U	0.42 U	0.42 U
4-Chlorophenyl Phenyl Ether		0.34 U	0.32 U	0.25 U	0.23 U	0.27 U	0.29 U	0.23 U	0.22 U	0.22 U	0.27 U	0.27 U	0.22 U	0.22 U
Acenaphthene		0.0095	0.0083	0.0028 J	0.002 J	0.073	0.086	0.024	0.0011 J	0.0011 J	0.073	0.093	0.0042 U	0.0042 U
Acenaphthylene		0.0093	0.0081	0.018	0.0058	0.073	0.085	0.0031 J	0.0021 J	0.0022 J	0.098	0.15	0.0017 J	0.0042 U
Acetophenone		0.66 U	0.62 U	0.49 U	0.44 U	0.53 U	0.57 U	0.45 U	0.43 U	0.42 U	0.52 U	0.52 U	0.42 U	0.42 U
Anthracene		0.024	0.023	0.021	0.0078	0.23	0.25	0.034	0.0032 J	0.0029 J	0.27	0.41	0.0017 J	0.0042 U
Benzaldehyde		0.66 U	0.62 U	0.49 U	0.44 U	0.53 U	0.57 U	0.45 U	0.43 U	0.42 U	0.52 U	0.52 U	0.42 U	0.42 U
Benzo(A)Anthracene		0.18	0.15	0.078	0.052	1.2	1.1	0.068	0.014	0.014	1.6	2.2	0.0088	0.0024 J
Benzo(A)Pyrene		0.21	0.17	0.097	0.051	1.2	0.97	0.048	0.013	0.013	1.5	2.1	0.0082	0.0019 J
Benzo(B)Fluoranthene		0.34	0.29	0.14	0.052	1.4	1.2	0.07	0.022	0.022	2.1	2.6	0.014	0.0032 J
Benzo(G,H,I)Perylene		0.13	0.1	0.051	0.027	0.78	0.61	0.02	0.0066	0.0063	1.1	1.1	0.0043	0.00084 J
Benzo(K)Fluoranthene		0.12	0.084	0.04	0.022	0.59	0.44	0.026	0.0075	0.0071	0.63	0.8	0.0041 J	0.0011 J
Benzyl Butyl Phthalate		0.34 U	0.32 U	0.25 U	0.23 U	0.27 U	0.29 U	0.23 U	0.22 U	0.22 U	0.063 J	0.098 J	0.22 U	0.22 U
Bis(2-Ethylhexyl) Phthalate		0.34 U	0.32 U	0.25 U	0.23 U	4.8	4.8	0.23 U	0.22 U	0.22 U	5.2	6.9	0.22 U	0.22 U
Carbazole		0.66 U	0.62 U	0.49 U	0.44 U	0.087 J	0.093 J	0.45 U	0.43 U	0.42 U	0.13 J	0.16 J	0.42 U	0.42 U
Chrysene		0.23	0.19	0.067	0.044	1.3	1.1	0.06	0.015	0.015	1.7	2.4	0.0095	0.0022 J
Dibenz(A,H)Anthracene		0.044	0.031	0.018	0.01	0.19	0.15	0.0071	0.0019 J	0.0019 J	0.3	0.39	0.0011 J	0.0042 U
Dibenzofuran		0.34 U	0.32 U	0.25 U	0.23 U	0.27 U	0.29 U	0.23 U	0.22 U	0.22 U	0.27 U	0.056 J	0.22 U	0.22 U
Diethyl Phthalate		0.34 U	0.32 U	0.25 U	0.23 U	0.27 U	0.12 J	0.23 U	0.22 U	0.22 U	0.27 U	0.27 U	0.22 U	0.22 U
Dimethyl Phthalate		0.23 J	0.23 J	0.18 J	0.16 J	0.57	0.71	0.35	0.27 J	0.51 J	0.4	0.54	0.34	0.39
Di-N-Butyl Phthalate		0.34 U	0.32 U	0.25 U	0.23 U	0.21 J	0.15 J	0.23 U	0.22 U	0.22 U	0.34	4.8	0.22 U	0.22 U
Di-N-Octylphthalate		0.66 U	0.62 U	0.49 U	0.44 U	0.53 U	0.57 U	0.45 U	0.43 U	0.42 U	0.52 U	0.52 U	0.42 U	0.42 U
Fluoranthene		0.41	0.35	0.17	0.064	1.8	1.6	0.11	0.033	0.032	2.3	2.9	0.019	0.0048
Fluorene		0.0097	0.0089	0.0064	0.0027 J	0.083	0.082	0.017	0.0014 J	0.0013 J	0.085	0.12	0.0042 U	0.0042 U
Hexachlorobenzene		0.34 U	0.32 U	0.25 U	0.23 U	0.27 U	0.29 U	0.23 U	0.22 U	0.22 U	0.27 U	0.27 U	0.22 U	0.22 U
Indeno(1,2,3-C,D)Pyrene		0.13	0.11	0.055	0.029	0.66	0.51	0.022	0.0072	0.0069	0.94	1.2	0.0044	0.00093 J
Naphthalene		0.0048 J	0.0036 J	0.0049 U	0.0015 J	0.035	0.051	0.012	0.0015 J	0.0014 J	0.055	0.061	0.0042 U	0.0042 U
Pentachlorophenol		0.013 U	0.013 U	0.0099 U	0.0089 U	0.0069 J	0.014	0.0092 U	0.0088 U	0.0086 U	0.0036 J	0.016	0.0085 U	0.0085 U
Phenanthrene		0.16	0.14	0.055	0.025	1.1	1.1	0.14	0.02	0.019	1.3	1.8	0.011	0.003 J
Phenol		0.66 U	0.62 U	0.49 U	0.44 U	0.1 J	0.11 J	0.052 J	0.046 J	0.098 J	0.062 J	0.1 J	0.061 J	0.048 J
Pyrene		0.36	0.31	0.14	0.081	2.8	2.4	0.13	0.027	0.027	3.1	4	0.018	0.0041 J

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIA 07 T14 OU3-R7-T14E- S05-Z1 7/16/2019	Phase IIA 07 T14 OU3-R7-T14E- FD 7/16/2019	Phase IIA 07 T14 OU3-R7-T14E- S05-Z2 7/16/2019	Phase IIA 07 T14 OU3-R7-T14E- S05-Z3 7/16/2019	Phase IIB 07 T15 OU3-R7-T15E- S01-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S01-Z2 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S02-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S02-Z2 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- FD 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S03-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S03-Z2 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S04-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S04-Z2 10/3/2019
PAH Mixtures ⁽¹⁾	2.3745 J	1.9794 J	0.9592 J	0.4783 J	13.549	11.773	0.8062 J	0.1777 J	0.1743 J	17.191	22.377	0.1058 J	0.02447 J
PAH, Total HMW ⁽¹⁾	2.154	1.785	0.856	0.432	11.92	10.08	0.5611	0.1472 J	0.1452 J	15.27	19.69	0.0914 J	0.02147 J
PAH, Total LMW ⁽¹⁾	0.2205 J	0.1944 J	0.1032 J	0.0463 J	1.629	1.693	0.2451 J	0.0305 J	0.0291 J	1.921	2.687	0.0144 J	0.003 J
Metals (mg/kg)													
Antimony	1.4 U	1.4 U	1 U	0.92 U	2.4	3.8	1 U	0.91 U	0.95 U	2	2.7	0.93 U	0.89 U
Arsenic	6.6	6.2	5.1	3.7	8	12.9	3.7	4.7	4.2	7.2	9.2	4.6	3.5
Barium	168	158	107	74	192	186	65.4	77.5	74.4	170	180	77.5	101
Beryllium	0.72 U	0.68 U	0.52 U	0.46 U	0.58 U	0.62 U	0.51 U	0.51	0.47 U	0.55 U	0.57 U	0.57	0.58
Cadmium	2.5	2.2	1.4	0.55	3	4.6	0.6	0.67	0.58	2.5	4.7	0.46 U	0.45 U
Chromium, Total	87.4	78.7	54.7	24	222	500	14	15.4	15.1	165	309	16	15.4
Cobalt	9.5	8.5	6.9	6.6	13.9	20	7.7	8.8	8.4	11.3	15.8	11.7	10.6
Copper	236	210	150	107	559	917	29.1	34.2	43.2	506	729	15	15
Lead	282	256	168	131	853	1780	41.9	38.4	40	667	1030	25	16.7
Manganese	900	760	514	231	877	675	501	673	576	786	617	446	385
Nickel	48	42.9	32.8	21.9	130	219	18.7	21.7	22.5	86.3	181	30.3	24.4
Selenium	1.1 J	1 J	0.67 J	0.53 J	0.91 J	0.96 J	0.32 J	0.25 J	0.25 J	0.83 J	0.68 J	0.25 J	0.21 J
Silver	2.6	2.3	1.7	0.56	3.5	4.7	0.51 U	0.46 U	0.47 U	2.5	3.5	0.46 U	0.45 U
Vanadium	18.7	17.1	12.9	10.9	26	44.2	15.7	20	17.8	20.4	32.8	17.8	18.4
Zinc	835	741	465	180	1680	3200	196	210	215	1240	2250	95.9	63.6
Mercury (mg/kg)													
Mercury	0.62	0.61	0.41	0.12 U	1.3	1.8	0.18	0.17	0.15	1.2	1.5	0.1 J	0.13

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T15 OU3-R7-T15E- S05-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S05-Z2 10/3/2019	Phase IIB 07 T16 OU3-R7-T16E- S01-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S01-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S02-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S02-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S03-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S03-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S04-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S04-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S05-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S05-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S06-Z1 9/30/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.046 U	0.042 U	0.17	0.022 J	0.047 UJ	0.041 U	0.043 U	0.041 U	0.17 J	0.12	0.0045 J	0.043 U	0.046 U
PCB-1254 (Aroclor 1254)	0.046 U	0.042 U	0.13	0.018 J	0.047 UJ	0.041 U	0.043 U	0.041 U	0.21	0.15	0.0084 J	0.043 U	0.046 U
PCB-1260 (Aroclor 1260)	0.046 U	0.042 U	0.048 U	0.044 U	0.047 UJ	0.041 U	0.043 U	0.041 U	0.059 U	0.057 U	0.048 U	0.043 U	0.046 U
PCB, Total ⁽¹⁾	0.046 U	0.042 U	0.3 J	0.04 J	0.047 UJ	0.041 U	0.043 U	0.041 U	0.38 J	0.27 J	0.0129 J	0.043 U	0.046 U
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0045 U	0.0042 U	0.006	0.0025 J	0.0047 U	0.0041 U	0.0043 U	0.0012 J	0.0086	0.0061	0.0048 U	0.0043 U	0.0046 U
4-Bromophenyl Phenyl Ether	0.23 U	0.22 U	0.25 U	0.23 U	0.24 U	0.21 U	0.22 U	0.21 U	0.31 U	0.29 U	0.25 U	0.22 U	0.24 U
4-Chloroaniline	0.45 U	0.42 U	0.48 U	0.44 U	0.47 U	0.41 U	0.43 U	0.41 U	0.59 U	0.57 U	0.48 U	0.43 U	0.46 U
4-Chlorophenyl Phenyl Ether	0.23 U	0.22 U	0.25 U	0.23 U	0.24 U	0.21 U	0.22 U	0.21 U	0.31 U	0.29 U	0.25 U	0.22 U	0.24 U
Acenaphthene	0.0045 U	0.0042 U	0.013	0.004 J	0.0047 U	0.0041 U	0.0043 U	0.0041 U	0.02	0.011	0.0011 J	0.0043 U	0.0046 U
Acenaphthylene	0.00092 J	0.001 J	0.026	0.011	0.0047 U	0.0041 U	0.0043 U	0.002 J	0.036	0.02	0.0027 J	0.00091 J	0.0046 U
Acetophenone	0.45 U	0.42 U	0.051 J	0.44 U	0.47 U	0.41 U	0.43 U	0.41 U	0.59 U	0.57 U	0.48 U	0.43 U	0.46 U
Anthracene	0.0015 J	0.00089 J	0.061 J	0.018	0.0015 J	0.0041 U	0.0043 U	0.0012 J	0.081	0.041	0.0075	0.002 J	0.0046 U
Benzaldehyde	0.45 U	0.42 U	0.48 U	0.44 U	0.47 U	0.41 U	0.43 U	0.41 U	0.59 U	0.57 U	0.48 U	0.43 U	0.46 U
Benzo(A)Anthracene	0.0049	0.005	0.36	0.097	0.007	0.004 J	0.0049	0.0062	0.55	0.22	0.025	0.01	0.0015 J
Benzo(A)Pyrene	0.0044 J	0.004 J	0.35	0.095	0.0055	0.0031 J	0.0051	0.008	0.55	0.22	0.025	0.01	0.0014 J
Benzo(B)Fluoranthene	0.0074	0.007	0.49	0.14	0.0091	0.0054	0.0088	0.015	0.8	0.36	0.042	0.014	0.0026 J
Benzo(G,H,I)Perylene	0.0022 J	0.0019 J	0.18 J	0.039	0.0026 J	0.0014 J	0.0033 J	0.0039 J	0.24	0.11	0.011	0.0053	0.00095 J
Benzo(K)Fluoranthene	0.0025 J	0.0026 J	0.17 J	0.054	0.0034 J	0.0019 J	0.0023 J	0.0043	0.21	0.09	0.013	0.0046	0.0046 U
Benzyl Butyl Phthalate	0.23 U	0.22 U	0.25 U	0.23 U	0.24 U	0.21 U	0.22 U	0.21 U	0.31 U	0.29 U	0.25 U	0.22 U	0.24 U
Bis(2-Ethylhexyl) Phthalate	0.23 U	0.22 U	0.31	0.11 J	0.24 U	0.21 U	0.22 U	0.19 J	0.53	0.15 J	0.57	0.22 U	0.24 U
Carbazole	0.45 U	0.42 U	0.48 U	0.44 U	0.47 U	0.41 U	0.43 U	0.41 U	0.59 U	0.57 U	0.48 U	0.43 U	0.46 U
Chrysene	0.0051	0.0044	0.42	0.091	0.0059	0.0033 J	0.0041 J	0.0092	0.62	0.3	0.024	0.0076	0.0014 J
Dibenz(A,H)Anthracene	0.0045 U	0.0042 U	0.057 J	0.015	0.0047 U	0.0041 U	0.001 J	0.001 J	0.076	0.039	0.0035 J	0.0014 J	0.0046 U
Dibenzofuran	0.23 U	0.22 U	0.25 U	0.23 U	0.24 U	0.21 U	0.22 U	0.21 U	0.31 U	0.29 U	0.25 U	0.22 U	0.24 U
Diethyl Phthalate	0.23 U	0.22 U	0.25 U	0.23 U	0.24 U	0.21 U	0.22 U	0.21 U	0.31 U	0.29 U	0.25 U	0.22 U	0.24 U
Dimethyl Phthalate	0.48	0.42	0.58	0.6	0.45	0.5	0.52	0.55	0.74	0.56	0.51	0.19 J	0.37
Di-N-Butyl Phthalate	0.23 U	0.22 U	0.25 U	0.23 U	0.24 U	0.21 U	0.22 U	0.21 U	0.31 U	0.29 U	0.25 U	0.22 U	0.24 U
Di-N-Octylphthalate	0.45 U	0.42 U	0.48 U	0.44 U	0.47 U	0.41 U	0.43 U	0.41 U	0.59 U	0.57 U	0.48 U	0.43 U	0.46 U
Fluoranthene	0.011	0.011	0.7	0.15	0.013	0.0072	0.0086	0.023	1.1	0.36	0.045	0.015	0.0027 J
Fluorene	0.0045 U	0.0042 U	0.016	0.0049	0.0047 U	0.0041 U	0.0043 U	0.00091 J	0.025	0.014	0.0012 J	0.0043 U	0.0046 U
Hexachlorobenzene	0.23 U	0.22 U	0.25 U	0.23 U	0.24 U	0.21 U	0.22 U	0.21 U	0.31 U	0.29 U	0.25 U	0.22 U	0.24 U
Indeno(1,2,3-C,D)Pyrene	0.0022 J	0.0022 J	0.18 J	0.045	0.003 J	0.0016 J	0.0035 J	0.0045	0.26	0.12	0.013	0.0049	0.0046 U
Naphthalene	0.0045 U	0.0042 U	0.0078	0.0029 J	0.0047 U	0.0041 U	0.0043 U	0.0019 J	0.012	0.0081	0.0012 J	0.0043 U	0.0046 U
Pentachlorophenol	0.0092 U	0.0086 U	0.0097 U	0.0089 U	0.0095 U	0.0082 U	0.0087 U	0.0083 U	0.012 U	0.0041 J	0.0098 U	0.0087 U	0.0094 U
Phenanthrene	0.0065	0.0074	0.3	0.074	0.0066	0.0036 J	0.0036 J	0.021	0.35	0.18	0.018	0.008	0.0018 J
Phenol	0.074 J	0.075 J	0.072 J	0.08 J	0.05 J	0.063 J	0.062 J	0.076 J	0.12 J	0.19 J	0.17 J	0.11 J	0.14 J
Pyrene	0.011	0.011	0.65	0.16	0.01	0.006	0.0067	0.017	1.1	0.52	0.043	0.017	0.0029 J

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T15 OU3-R7-T15E- S05-Z1 10/3/2019	Phase IIB 07 T15 OU3-R7-T15E- S05-Z2 10/3/2019	Phase IIB 07 T16 OU3-R7-T16E- S01-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S01-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S02-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S02-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S03-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S03-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S04-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S04-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S05-Z1 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S05-Z2 9/30/2019	Phase IIB 07 T16 OU3-R7-T16E- S06-Z1 9/30/2019
PAH Mixtures ⁽¹⁾	0.05962 J	0.05839 J	3.9868 J	1.0033 J	0.0676 J	0.0375 J	0.0519 J	0.12031 J	6.0386	2.6192	0.2762 J	0.10071 J	0.01525 J
PAH, Total HMW ⁽¹⁾	0.0507 J	0.0491 J	3.557 J	0.886	0.0595 J	0.0339 J	0.0483 J	0.0921 J	5.506	2.339	0.2445 J	0.0898 J	0.01345 J
PAH, Total LMW ⁽¹⁾	0.00892 J	0.00929 J	0.4298 J	0.1173 J	0.0081 J	0.0036 J	0.0036 J	0.02821 J	0.5326	0.2802	0.0317 J	0.01091 J	0.0018 J
Metals (mg/kg)													
Antimony	0.98 U	0.89 U	1.1 U	0.95 U	1.1 U	0.9 U	0.91 U	0.88 U	1.5	1.6	1 U	0.94 U	1 U
Arsenic	3.5	3.6	7.6	7.6 J	4.4	5.4	6.1	7	6.7	9.2	5	5.5	3.8
Barium	88.6	95.2	148	139	65.3	71	54.3	57.8	170	165	80.2	98.5	47.4
Beryllium	0.57	0.58	0.54 U	0.6	0.53 U	0.49	0.46 U	0.44 U	0.63 U	0.64	0.52 U	0.53	0.52 U
Cadmium	0.49 U	0.44 U	1.8	1.1	0.31 J	0.26 J	0.21 J	0.2 J	2.3	2.7	0.8	0.31 J	0.15 J
Chromium, Total	13.1	13.5	57.3	40.7	11.7	12.1	11.1	11.4	105	263	16.8	15.7	12.7
Cobalt	8.6	9.4	12.9	9.9	7.2	7.9	7.6	8	10.9	14.8	7.7	8.3	8.2
Copper	17.7	17.5	158	104	21.2	20.6	14.8	13.9	301	469	33.7	26.1	18.4
Lead	22.7	19.9	240	179	112	135	57.2	61.8	406	741	90.4	64.5	69.8
Manganese	306	332	867	718	232	322	363	406	730	610	390	354	224
Nickel	20.4	21.2	48.8	35.8	16.1	16.4	14.5	14.9	69.8	140	20.4	18.6	17.7
Selenium	0.25 J	2.2 U	2.7 U	2.4 U	2.7 U	2.3 U	2.3 U	2.2 U	3.2 U	3 U	2.6 U	2.3 U	0.33 J
Silver	0.49 U	0.44 U	0.96	0.64	0.53 U	0.45 U	0.1 J	0.11 J	2.4	2.9	0.21 J	0.2 J	0.072 J
Vanadium	16.5	16.9	17.1	18.5	16.3	17.3	16.7	17	21.2	36.3	16.5	18	16.6
Zinc	69.5	64.4	508	315	90.2	77.9	63.3	61	908	1640	156	80.6	62.6
Mercury (mg/kg)													
Mercury	0.11 J	0.088 J	1.3	1.1	0.078 J	0.085 J	0.089 J	0.066 J	0.82	0.98	0.41	0.44	0.079 J

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T16 OU3-R7-T16E-S06-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S01-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S01-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S02-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S02-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S03-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S03-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S04-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-FD 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S04-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S05-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S05-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S06-Z1 9/30/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.041 U	1.9	1.4	0.047 U	0.012 J	0.048 U	0.045 UJ	0.043 U	0.04 U	0.042 U	1.8	0.6	0.04 U
PCB-1254 (Aroclor 1254)	0.041 U	2.5	1	0.032 J	0.024 J	0.0037 J	0.0046 J-	0.043 U	0.04 U	0.042 U	1.8	0.54 J	0.04 U
PCB-1260 (Aroclor 1260)	0.041 U	0.05 U	0.051 U	0.069	0.045 U	0.048 U	0.045 UJ	0.043 U	0.04 U	0.042 U	0.045 U	0.046 U	0.04 U
PCB, Total ⁽¹⁾	0.041 U	4.4 J	2.4 J	0.101 J	0.036 J	0.0037 J	0.0046 J-	0.043 U	0.04 U	0.042 U	3.6 J	1.14 J	0.04 U
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0041 U	0.0095	0.027	0.0021 J	0.0034 J	0.0048 U	0.001 J	0.0043 U	--	0.0042 U	0.01	0.02	0.004 U
4-Bromophenyl Phenyl Ether	0.21 U	0.26 U	0.26 U	0.24 U	0.23 U	0.25 U	0.23 U	0.22 U	--	0.21 U	0.23 U	0.24 U	0.21 U
4-Chloroaniline	0.41 U	0.5 U	0.51 U	0.46 U	0.46 U	0.48 U	0.46 U	0.43 U	--	0.42 U	0.45 U	0.46 U	0.4 U
4-Chlorophenyl Phenyl Ether	0.21 U	0.26 U	0.26 U	0.24 U	0.23 U	0.25 U	0.23 U	0.22 U	--	0.21 U	0.23 U	0.24 U	0.21 U
Acenaphthene	0.0041 U	0.022	0.05	0.0023 J	0.0025 J	0.0048 U	0.0046 U	0.0043 U	--	0.0042 U	0.014	0.031	0.004 U
Acenaphthylene	0.0041 U	0.029	0.059	0.0059	0.009	0.0024 J	0.0025 J	0.0043 U	--	0.0042 U	0.026	0.051	0.004 U
Acetophenone	0.41 U	0.5 U	0.51 U	0.46 U	0.46 U	0.48 U	0.46 U	0.43 U	--	0.42 U	0.45 U	0.46 U	0.4 U
Anthracene	0.0041 U	0.091	0.2	0.0088	0.012	0.0027 J	0.0029 J	0.0043 U	--	0.0042 U	0.054	0.12	0.004 U
Benzaldehyde	0.41 U	0.5 U	0.51 U	0.46 U	0.46 U	0.48 U	0.46 U	0.43 U	--	0.42 U	0.45 U	0.46 U	0.4 U
Benzo(A)Anthracene	0.0013 J	0.55	1	0.049	0.062	0.015	0.017	0.0043 U	--	0.0042 U	0.39	0.72	0.0042
Benzo(A)Pyrene	0.0012 J	0.53	1	0.05	0.062	0.017	0.018	0.00087 J	--	0.0042 U	0.42	0.73	0.0048
Benzo(B)Fluoranthene	0.0023 J	0.65	1.2	0.085	0.11	0.029	0.029	0.0018 J	--	0.0042 U	0.51	0.91	0.0085
Benzo(G,H,I)Perylene	0.0041 U	0.38	0.71	0.032	0.037	0.01	0.011	0.0043 U	--	0.0042 U	0.33	0.57	0.0036 J
Benzo(K)Fluoranthene	0.0041 U	0.19	0.4	0.022	0.028	0.0086	0.008	0.0043 U	--	0.0042 U	0.17	0.34	0.0025 J
Benzyl Butyl Phthalate	0.21 U	0.26 U	0.26 U	0.24 U	0.23 U	0.25 U	0.23 U	0.22 U	--	0.21 U	0.23 U	0.24 U	0.21 U
Bis(2-Ethylhexyl) Phthalate	0.21 U	1.7	1.2	0.24 U	0.23	0.25 U	0.23 U	0.22 U	--	0.21 U	2.6	1	0.21 U
Carbazole	0.41 U	0.5 U	0.09 J	0.46 U	0.46 U	0.48 U	0.46 U	0.43 U	--	0.42 U	0.45 U	0.056 J	0.4 U
Chrysene	0.0012 J	0.65	1.1	0.046	0.055	0.015	0.016	0.0043 U	--	0.0042 U	0.49	0.85	0.0045
Dibenz(A,H)Anthracene	0.0041 U	0.083	0.16	0.0088	0.011	0.0028 J	0.0034 J	0.0043 U	--	0.0042 U	0.073	0.12	0.00088 J
Dibenzofuran	0.21 U	0.26 U	0.26 U	0.24 U	0.23 U	0.25 U	0.23 U	0.22 U	--	0.21 U	0.23 U	0.24 U	0.21 U
Diethyl Phthalate	0.21 U	0.26 U	0.26 U	0.24 U	0.23 U	0.25 U	0.23 U	0.22 U	--	0.21 U	0.23 U	0.24 U	0.21 U
Dimethyl Phthalate	0.49	0.32	0.44	0.29	0.31	0.34	0.39	0.57	--	0.55	0.39	0.33	0.24
Di-N-Butyl Phthalate	0.21 U	0.26 U	0.26 U	0.24 U	0.23 U	0.25 U	0.23 U	0.22 U	--	0.21 U	0.23 U	0.1 J	0.21 U
Di-N-Octylphthalate	0.41 U	0.5 U	0.51 U	0.46 U	0.46 U	0.48 U	0.46 U	0.43 U	--	0.42 U	0.45 U	0.46 U	0.4 U
Fluoranthene	0.0019 J	0.94	1.6	0.083	0.12	0.026	0.026	0.0014 J	--	0.0042 U	0.68	1.2	0.0075
Fluorene	0.0041 U	0.026	0.054	0.0029 J	0.0035 J	0.0048 U	0.0012 J	0.0043 U	--	0.0042 U	0.015	0.033	0.004 U
Hexachlorobenzene	0.21 U	0.26 U	0.26 U	0.24 U	0.23 U	0.25 U	0.23 U	0.22 U	--	0.21 U	0.23 U	0.24 U	0.21 U
Indeno(1,2,3-C,D)Pyrene	0.0041 U	0.32	0.61	0.031	0.034	0.01	0.011	0.0043 U	--	0.0042 U	0.28	0.48	0.0033 J
Naphthalene	0.0041 U	0.011	0.034	0.0027 J	0.0043 J	0.0011 J	0.0012 J	0.0043 U	--	0.0042 U	0.01	0.018	0.004 U
Pentachlorophenol	0.0083 U	0.0022 J	0.0066 J	0.0094 U	0.0093 U	0.0098 U	0.0092 U	0.0087 U	--	0.0084 U	0.0038 J	0.0056 J	0.0081 U
Phenanthrene	0.0012 J	0.43	0.88	0.042	0.053	0.011	0.014	0.0043 U	--	0.0042 U	0.28	0.59	0.0037 J
Phenol	0.17 J	0.13 J	0.15 J	0.1 J	0.11 J	0.12 J	0.11 J	0.18 J	--	0.15 J	0.11 J	0.1 J	0.083 J
Pyrene	0.0021 J	0.97	1.8	0.083	0.13	0.027	0.032	0.0014 J	--	0.0042 U	0.7	1.3	0.0088

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T16 OU3-R7-T16E-S06-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S01-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S01-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S02-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S02-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S03-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S03-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S04-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-FD 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S04-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S05-Z1 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S05-Z2 9/30/2019	Phase IIB 07 T17 OU3-R7-T17W-S06-Z1 9/30/2019
PAH Mixtures ⁽¹⁾	0.0112 J	5.8815	10.884	0.5565 J	0.7367 J	0.1776 J	0.1942 J	0.00547 J	--	0.0042 U	4.452	8.083	0.05228 J
PAH, Total HMW ⁽¹⁾	0.01 J	5.263	9.58	0.4898	0.649	0.1604 J	0.1714 J	0.00547 J	--	0.0042 U	4.043	7.22	0.04858 J
PAH, Total LMW ⁽¹⁾	0.0012 J	0.6185	1.304	0.0667 J	0.0877 J	0.0172 J	0.0228 J	0.0043 U	--	0.0042 U	0.409	0.863	0.0037 J
Metals (mg/kg)													
Antimony	0.91 U	1.2	1.8	1 U	0.99 U	1 U	0.97 U	0.93 U	0.9 U	0.91 U	1.3	1.7	0.85 U
Arsenic	4.9	5.3	6.6	5.5	6	5.4	5.1	4.2	4.2	5.2	6.1	6.7	2.8
Barium	53.1	165	200	187	218	177	208	61.8	59.7	91.7	172	204	40.3
Beryllium	0.53	0.56 U	0.57 U	0.72	0.77	1	1	0.75	0.68	1	0.57	0.56	0.42 U
Cadmium	0.17 J	2.1	4	1.1	1.4	0.71	0.85	0.06 J	0.04 J	0.095 J	2.6	4.5	0.42 U
Chromium, Total	13.9	93.7	154	67	84.6	32.8	32.7	16.6	16	21	123	164	9.9
Cobalt	9.5	10.5	12.7	10.6	11.8	11	11.2	12.2	11.1	24.2	11.8	13.1	5.5
Copper	18.6	292	417	147	181	57.7	55.5	24.9	25.5	35.6	313	415	7.5
Lead	73.8	311	496	217	281	89.1	91.3	9.8	9.7	10.3	402	556	17.5
Manganese	266	750	849	973	1070	1610	1990	450	450	692	825	791	239
Nickel	19.5	54.8	94.5	41.3	51.5	29.8	29.8	23	21.9	32.4	72.5	95	11.9
Selenium	0.59 J	1.1 J	1.5 J	0.97 J	0.67 J	0.86 J	0.83 J	0.47 J	0.37 J	0.51 J	1.1 J	1.3 J	0.37 J
Silver	0.059 J	2	3.5	0.82	0.94	0.37 J	0.48 U	0.47 U	0.031 J	0.46 U	2.1	3.2	0.42 U
Vanadium	19.1	17.3	23.9	22.2	24.9	26.3	25.1	22.1	21.5	25.2	21.3	24.3	16.8
Zinc	59	743	1320	447	531	185	174	61.7	57.9	64.2	959	1420	41.7
Mercury (mg/kg)													
Mercury	0.069 J	0.89	1.1	0.83	1.1	0.46	0.5	0.11 U	0.036 J	0.12 U	0.16	0.17	0.1 U

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIB 07 T17 OU3-R7- T17W-S06-Z2 9/30/2019	Phase IIB 07 T18 OU3-R7- T18W-S01-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S01-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S02-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S02-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S03-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S03-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S04-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S04-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S05-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S05-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S06-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S06-Z2 10/4/2019
Analytes													
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.038 U	0.21	0.063 U	0.034 J	0.0097 J	0.015 J-	0.049 U	0.05 U	0.044 U	0.01 J	0.044 U	0.048 U	0.045 U
PCB-1254 (Aroclor 1254)	0.038 U	0.088 J	0.2	0.036 J	0.011 J	0.017 J-	0.027 J	0.005 JN	0.044 U	0.0092 J	0.044 U	0.048 U	0.045 U
PCB-1260 (Aroclor 1260)	0.038 U	0.055 U	0.063 U	0.054 U	0.05 U	0.058 UJ	0.049 U	0.05 U	0.044 U	0.051 U	0.044 U	0.048 U	0.045 U
PCB, Total ⁽¹⁾	0.038 U	0.298 J	0.2 J	0.07 J	0.0207 J	0.032 J-	0.027 J	0.005 JN	0.044 U	0.0192 J	0.044 U	0.048 U	0.045 U
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0038 U	0.0038 J	0.32 U	0.28 U	0.25 U	0.0057 U	0.0049 U	0.005 U	0.0044 U	0.0038 J	0.00099 J	0.0048 U	0.0045 U
4-Bromophenyl Phenyl Ether	0.2 U	0.29 U	0.32 U	0.28 U	0.25 U	0.3 U	0.25 U	0.26 U	0.22 U	0.1 J	0.23 U	0.25 U	0.23 U
4-Chloroaniline	0.38 U	0.55 U	0.63 U	0.54 U	0.49 U	0.57 U	0.49 U	0.5 U	0.44 U	0.51 U	0.44 U	0.48 U	0.45 U
4-Chlorophenyl Phenyl Ether	0.2 U	0.29 U	0.32 U	0.28 U	0.25 U	0.3 U	0.25 U	0.26 U	0.22 U	0.073 J	0.23 U	0.25 U	0.23 U
Acenaphthene	0.0038 U	0.0091	0.0043 J	0.0034 J	0.0028 J	0.0023 J	0.0049 U	0.0011 J	0.0044 U	0.024	0.0013 J	0.0048 U	0.0045 U
Acenaphthylene	0.0038 U	0.016	0.0046 J	0.0099	0.007	0.0052 J	0.0021 J	0.003 J	0.0044 U	0.018	0.0035 J	0.0048 U	0.0045 U
Acetophenone	0.049 J	0.55 U	0.63 U	0.54 U	0.49 U	0.57 U	0.49 U	0.5 U	0.44 U	0.51 U	0.44 U	0.48 U	0.45 U
Anthracene	0.0038 U	0.034	0.012	0.016	0.011	0.0098	0.0027 J	0.0042 J	0.0044 U	0.15	0.0053	0.0012 J	0.0045 U
Benzaldehyde	0.38 U	0.55 U	0.63 U	0.54 U	0.49 U	0.57 U	0.49 U	0.5 U	0.44 U	0.51 U	0.44 U	0.48 U	0.45 U
Benzo(A)Anthracene	0.0012 J	0.21	0.067	0.11	0.063	0.049	0.014	0.023	0.0048	0.19	0.028	0.0054	0.0035 J
Benzo(A)Pyrene	0.0013 J	0.22	0.064	0.1	0.055	0.047	0.014	0.025	0.0047	0.23	0.029	0.006	0.0037 J
Benzo(B)Fluoranthene	0.0023 J	0.38	0.095	0.17	0.081	0.069	0.021	0.042	0.0072	0.29	0.043	0.0097	0.0058
Benzo(G,H,I)Perylene	0.0038 U	0.11	0.026	0.046	0.022	0.021	0.0071	0.015	0.0024 J	0.2	0.015	0.0037 J	0.0022 J
Benzo(K)Fluoranthene	0.0038 U	0.11	0.025	0.045	0.026	0.023	0.0056	0.01	0.0019 J	0.24	0.013	0.0034 J	0.0018 J
Benzyl Butyl Phthalate	0.2 U	0.29 U	0.32 U	0.28 U	0.25 U	0.3 U	0.25 U	0.26 U	0.22 U	0.1 J	0.23 U	0.25 U	0.23 U
Bis(2-Ethylhexyl) Phthalate	0.2 U	0.056 J	0.32 U	0.28 U	0.25 U	0.3 U	0.35	0.26 U	0.22 U	0.15 J	0.23 U	0.25 U	0.23 U
Carbazole	0.38 U	0.55 U	0.63 U	0.54 U	0.49 U	0.57 U	0.49 U	0.5 U	0.44 U	0.51 U	0.44 U	0.48 U	0.45 U
Chrysene	0.0013 J	0.17	0.062	0.084	0.056	0.043	0.013	0.022	0.0039 J	0.19	0.026	0.0057	0.0033 J
Dibenz(A,H)Anthracene	0.0038 U	0.034	0.0095	0.016	0.0084	0.0073	0.0019 J	0.0039 J	0.0044 U	0.2	0.0043 J	0.0048 U	0.0045 U
Dibenzofuran	0.2 U	0.29 U	0.32 U	0.28 U	0.25 U	0.3 U	0.25 U	0.26 U	0.22 U	0.26 U	0.23 U	0.25 U	0.23 U
Diethyl Phthalate	0.2 U	0.29 U	0.32 U	0.28 U	0.25 U	0.3 U	0.25 U	0.26 U	0.22 U	0.26 U	0.23 U	0.25 U	0.23 U
Dimethyl Phthalate	0.15 J	0.44	0.6	0.39	0.38	0.29 J	0.22 J	0.33	0.26	0.3	0.34	0.35	0.37
Di-N-Butyl Phthalate	0.2 U	0.29 U	0.32 U	0.28 U	0.25 U	0.3 U	0.25 U	0.26 U	0.22 U	0.079 J	0.23 U	0.25 U	0.23 U
Di-N-Octylphthalate	0.38 U	0.55 U	0.63 U	0.54 U	0.49 U	0.57 U	0.49 U	0.5 U	0.44 U	0.14 J	0.44 U	0.48 U	0.45 U
Fluoranthene	0.002 J	0.34	0.095	0.15	0.079	0.078	0.022	0.043	0.0067	0.18	0.045	0.0099	0.0057
Fluorene	0.0038 U	0.012	0.0041 J	0.0042 J	0.0033 J	0.0032 J	0.0011 J	0.0013 J	0.0044 U	0.05	0.0015 J	0.0048 U	0.0045 U
Hexachlorobenzene	0.2 U	0.29 U	0.32 U	0.28 U	0.25 U	0.3 U	0.25 U	0.26 U	0.22 U	0.17 J	0.23 U	0.25 U	0.23 U
Indeno(1,2,3-C,D)Pyrene	0.0038 U	0.12	0.03	0.053	0.024	0.023	0.0065	0.014	0.0022 J	0.21	0.014	0.0034 J	0.002 J
Naphthalene	0.0038 U	0.0051 J	0.0031 J	0.0029 J	0.0023 J	0.0016 J	0.0049 U	0.0012 J	0.0044 U	0.0012 J	0.0011 J	0.0048 U	0.0045 U
Pentachlorophenol	0.0077 U	0.011 U	0.013 U	0.011 U	0.01 U	0.012 U	0.0099 U	0.01 U	0.0088 U	0.0013 J	0.009 U	0.0097 U	0.0091 U
Phenanthrene	0.0012 J	0.16	0.053	0.075	0.053	0.043	0.014	0.019	0.0035 J	0.13	0.024	0.0058	0.0029 J
Phenol	0.064 J	0.16 J	0.25 J	0.18 J	0.18 J	0.12 J	0.074 J	0.14 J	0.1 J	0.11 J	0.11 J	0.13 J	0.12 J
Pyrene	0.0023 J	0.39	0.11	0.19	0.1	0.084	0.025	0.04	0.0071	0.24	0.048	0.011	0.0062

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIB 07 T17 OU3-R7- T17W-S06-Z2 9/30/2019	Phase IIB 07 T18 OU3-R7- T18W-S01-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S01-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S02-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S02-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S03-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S03-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S04-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S04-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S05-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S05-Z2 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S06-Z1 10/4/2019	Phase IIB 07 T18 OU3-R7- T18W-S06-Z2 10/4/2019
Analytes													
PAH Mixtures ⁽¹⁾	0.0116 J	2.324 J	0.6663 J	1.0774 J	0.5955 J	0.5094 J	0.15 J	0.2677 J	0.0444 J	2.547 J	0.30299 J	0.0652 J	0.0371 J
PAH, Total HMW ⁽¹⁾	0.0104 J	2.084	0.5835	0.964	0.5144	0.4443	0.1301 J	0.2379 J	0.0409 J	2.17	0.2653 J	0.0582 J	0.0342 J
PAH, Total LMW ⁽¹⁾	0.0012 J	0.24 J	0.0828 J	0.1134 J	0.0811 J	0.0651 J	0.0199 J	0.0298 J	0.0035 J	0.377 J	0.03769 J	0.007 J	0.0029 J
Metals (mg/kg)													
Antimony	0.81 U	1.2 U	1.5	1.2 U	1.3	1.3 U	1.1 U	1.1 U	0.97 U	1.1 U	0.96 U	1 U	0.98 U
Arsenic	3	6.1	6.9	6.6	7.6	7 J	6.3	3.4	2.1	3.2	2.4	2.3	2.1
Barium	47.3	178	251	217	228	254	244	191	158	161	171	48	48.2
Beryllium	0.41 U	0.62 U	0.69 U	0.69	0.68	0.7	0.55	0.73	0.65	0.59	0.62	0.52 U	0.49 U
Cadmium	0.41 U	2.4	5.3	2.4	2.2	2.1	2.3	1	0.58	0.8	0.89	0.52 U	0.49 U
Chromium, Total	10.3	79.2	162	118	140	101	75.5	22	13.1	23.8	19.1	6.3	5.6
Cobalt	5.6	10.8	13.3	11.1	11.3	11.5	7.9	7.4	7.6	5.9	6.7	4.5	3.9
Copper	6.8	234	401	266	287	276	257	70.3	34	74.7	61.9	11.5	10
Lead	10.8	258	527	371	456	397	427	126	62.3	122	108	24.1	22.8
Manganese	183	946	775	747	656	632	929	1480	1210	789	1070	398	375
Nickel	12.8	50.9	87.7	58.3	63.7	54.7	38.5	20.7	12.5	15.9	16.3	5.6	5
Selenium	0.48 J	1.2 J	1.4 J	1.1 J	0.8 J	1 J	0.55 J	0.63 J	0.48 J	0.72 J	0.5 J	0.37 J	0.32 J
Silver	0.41 U	2	4.3	1.8	1.7	1.6	1.3	0.54 U	0.48 U	0.56 U	0.48 U	0.52 U	0.49 U
Vanadium	18	19.9	24.9	25	26.5	24.5	15	12.9	12.3	11.7	11.3	11	10.1
Zinc	38.1	728	1490	809	866	728	566	174	90.6	164	134	34.5	28
Mercury (mg/kg)													
Mercury	0.1 U	0.86	0.97	1.3	1.7	1.5	3.1	0.49	0.38	0.51	0.64	0.077 J	0.068 J

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIB 07 T19 OU3-R7- T19W-S01-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S01-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-FD 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S02-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S02-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S03-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S03-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S04-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S04-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S05-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S05-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S06-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S06-Z2 10/4/2019
Analytes													
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	25	2.4	1.7	0.24	0.14	0.047 J	0.087	0.038 J	0.025 J	0.84	0.18	0.046 U	0.045 U
PCB-1254 (Aroclor 1254)	17	2.1	1.5	0.23	0.26	0.047 J	0.07	0.048 U	0.044 U	0.84	0.14	0.046 U	0.045 U
PCB-1260 (Aroclor 1260)	0.056 U	0.054 U	0.054 U	0.11	0.13	0.048 U	0.045 U	0.031 J	0.031 J	0.047 U	0.043 U	0.046 U	0.045 U
PCB, Total ⁽¹⁾	42 J	4.5 J	3.2 J	0.58 J	0.53 J	0.094 J	0.157 J	0.069 J	0.056 J	1.68 J	0.32 J	0.046 U	0.045 U
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.02	0.0085	0.014	0.08	0.011	0.0023 J	0.0038 J	0.0034 J	0.0028 J	0.0033 J	0.0072	0.0045 U	0.0045 U
4-Bromophenyl Phenyl Ether	0.29 U	0.28 U	0.28 U	0.24 U	0.22 U	0.25 U	0.23 U	0.25 U	0.23 U	0.24 U	0.22 U	0.23 U	0.23 U
4-Chloroaniline	0.56 U	0.54 U	0.55 U	0.47 U	0.42 U	0.48 U	0.45 U	0.48 U	0.44 U	0.47 U	0.43 U	0.45 U	0.45 U
4-Chlorophenyl Phenyl Ether	0.29 U	0.28 U	0.28 U	0.24 U	0.22 U	0.25 U	0.23 U	0.25 U	0.23 U	0.24 U	0.22 U	0.23 U	0.23 U
Acenaphthene	0.037	0.021	0.028	0.18	0.021	0.0053	0.0046	0.0051	0.0035 J	0.0078	0.012	0.0045 U	0.0045 U
Acenaphthylene	0.051	0.04	0.049	0.031	0.023	0.011	0.014	0.015	0.012	0.016	0.02	0.0024 J	0.0041 J
Acetophenone	0.56 U	0.54 U	0.55 U	0.47 U	0.42 U	0.48 U	0.45 U	0.48 U	0.44 U	0.47 U	0.43 U	0.45 U	0.45 U
Anthracene	0.11	0.096	0.11	0.41	0.063	0.021	0.021	0.022	0.017	0.058	0.09	0.0032 J	0.0048
Benzaldehyde	0.56 U	0.54 U	0.55 U	0.47 U	0.42 U	0.48 U	0.45 U	0.48 U	0.44 U	0.47 U	0.43 U	0.45 U	0.45 U
Benzo(A)Anthracene	0.96	0.7	0.91	1	0.29	0.095	0.12	0.12	0.085	0.3	0.33	0.019	0.024
Benzo(A)Pyrene	0.97	0.67	0.91	0.77	0.28	0.1	0.12	0.12	0.09	0.29	0.31	0.02	0.024
Benzo(B)Fluoranthene	1.2	0.89	1.1	0.89	0.38	0.16	0.17	0.18	0.13	0.4	0.42	0.035	0.041
Benzo(G,H,I)Perylene	0.64	0.44	0.6	0.44	0.14	0.062	0.061	0.068	0.045	0.19	0.22	0.012	0.014
Benzo(K)Fluoranthene	0.35	0.28	0.38	0.31	0.097	0.057	0.058	0.059	0.038	0.19	0.18	0.0091	0.012
Benzyl Butyl Phthalate	0.29 U	0.28 U	0.28 U	0.24 U	0.22 U	0.25 U	0.23 U	0.25 UJ	0.23 UJ	0.049 J	0.053 J	0.23 U	0.23 U
Bis(2-Ethylhexyl) Phthalate	4.7	1.3 J	3 J	2.6	0.85	0.25 U	0.057 J	0.065 J	0.23 U	0.15 J	0.077 J	0.23 U	0.23 U
Carbazole	0.065 J	0.54 U	0.063 J	0.063 J	0.42 U	0.48 U	0.45 U	0.48 U	0.44 U	0.47 U	0.43 U	0.45 U	0.45 U
Chrysene	1.1	0.77	1	1.1	0.32	0.085	0.096	0.1	0.075	0.3	0.36	0.02	0.023
Dibenz(A,H)Anthracene	0.18 J	0.097	0.11	0.1	0.043	0.018	0.019	0.021	0.014	0.074	0.086	0.0031 J	0.005
Dibenzofuran	0.29 U	0.28 U	0.28 U	0.24 U	0.22 U	0.25 U	0.23 U	0.25 U	0.23 U	0.24 U	0.22 U	0.23 U	0.23 U
Diethyl Phthalate	0.29 U	0.28 U	0.28 U	0.24 U	0.22 U	0.25 U	0.23 U	0.25 U	0.23 U	0.24 U	0.22 U	0.23 U	0.23 U
Dimethyl Phthalate	0.48	0.33 J	0.57 J	0.3	0.33	0.26	0.3	0.42	0.34	0.24	0.32	0.24	0.3
Di-N-Butyl Phthalate	0.12 J	0.28 U	0.11 J	0.24 U	0.051 J	0.25 U	0.23 U	0.25 U	0.23 U	0.24 U	0.22 U	0.23 U	0.23 U
Di-N-Octylphthalate	0.14 J	0.54 U	0.55 U	0.47 U	0.42 U	0.48 U	0.45 U	0.48 U	0.44 U	0.056 J	0.057 J	0.45 U	0.45 U
Fluoranthene	1.4	1	1.4	1.6	0.48	0.17	0.17	0.18	0.12	0.39	0.45	0.035	0.043
Fluorene	0.046	0.025	0.035	0.17 J	0.023	0.0065	0.006	0.0065	0.0044	0.013	0.018	0.00092 J	0.0011 J
Hexachlorobenzene	0.29 U	0.28 U	0.28 U	0.24 U	0.22 U	0.25 U	0.23 U	0.25 U	0.23 U	0.24 U	0.22 U	0.23 U	0.23 U
Indeno(1,2,3-C,D)Pyrene	0.52	0.36	0.5	0.27	0.13	0.057	0.056	0.062	0.044	0.18	0.17	0.011	0.014
Naphthalene	0.024	0.011	0.018	0.063	0.011	0.0033 J	0.0046	0.0044 J	0.0034 J	0.004 J	0.0077	0.0045 U	0.0011 J
Pentachlorophenol	0.0038 J	0.011 U	0.0019 J	0.0095 U	0.0016 J	0.0098 U	0.0091 U	0.0097 U	0.0089 U	0.0095 U	0.0054 J	0.0092 U	0.009 U
Phenanthrene	0.71	0.45	0.62	2	0.28	0.084	0.09	0.085	0.067	0.2	0.28	0.014	0.018
Phenol	0.18 J	0.12 J	0.18 J	0.092 J	0.12 J	0.11 J	0.099 J	0.14 J	0.11 J	0.099 J	0.12 J	0.082 J	0.12 J
Pyrene	1.7	1.2	1.6	2.1	0.54	0.19	0.2	0.25	0.15	0.49	0.58	0.038	0.042

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T19 OU3-R7- T19W-S01-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S01-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-FD 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S02-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S02-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S03-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S03-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S04-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S04-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S05-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S05-Z2 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S06-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S06-Z2 10/4/2019
PAH Mixtures ⁽¹⁾	10.018 J	7.0585	9.384	11.514 J	3.132	1.1274 J	1.214 J	1.3014 J	0.9011 J	3.1061 J	3.5409	0.22272 J	0.2711 J
PAH, Total HMW ⁽¹⁾	9.02 J	6.407	8.51	8.58	2.7	0.994	1.07	1.16	0.791	2.804	3.106	0.2022 J	0.242
PAH, Total LMW ⁽¹⁾	0.998	0.6515	0.874	2.934 J	0.432	0.1334 J	0.144 J	0.1414 J	0.1101 J	0.3021 J	0.4349	0.02052 J	0.0291 J
Metals (mg/kg)													
Antimony	1.2 U	1.2 U	1.2 U	1 U	0.92 U	1.1 U	0.98 U	1.1 U	0.99 U	1 U	2.4	0.99 U	0.98 U
Arsenic	4.5	4.4	4.7	3.9	4.5	4	4.6	5.2	5.5	5.1	6.5	2.5	2.6
Barium	137	130	143	147	160	158	179	184	193	166	243	71.3	89.5
Beryllium	0.62 U	0.6 U	0.6 U	0.52 U	0.51	0.53 U	0.54	0.69	0.69	0.51 U	0.56	0.49 U	0.49 U
Cadmium	2.4	2.1	2.3	1.8	2.1	1.6	1.8	1.7	1.6	2.3	2	0.49 U	0.68
Chromium, Total	71.7	84.2	96	72.6	87.2	57.4	66.2	64.3	58.9	124	120	13	19.5
Cobalt	7.4	7.1	7.8	6.9	7.6	6.6	7.6	10.2	10.4	7.7	7.6	3.9	4.1
Copper	303	302	341	222	260	175	206	153	145	312	524	33.4	51.8
Lead	287	315	368	287	369	268	307	233	232	491	594	54.8	88.4
Manganese	737	592	603	696	736	682	714	880	856	636	657	407	451
Nickel	40.4	46	54.8	39	46.7	33.9	43.2	39.8	39.5	57.5	47.5	8.9	13
Selenium	0.9 J	0.82 J	0.81 J	0.77 J	0.59 J	0.75 J	0.54 J	0.85 J	0.61 J	0.5 J	0.42 J	0.59 J	0.36 J
Silver	1.5	1.9	2.1	1.4	1.3	1.2	1.2	1.2	1	1.7	2.7	0.49 U	0.49 U
Vanadium	10.2	10.5	12	12	14.5	11.8	13.8	19	19	16.7	12.8	9.6	10.5
Zinc	657	688	814	583	681	496	540	475	426	927	783	84.3	122
Mercury (mg/kg)													
Mercury	0.6	1	0.82	0.84	1.1	1	1.1	0.81	1.2	1.3	1.9	0.18	0.33

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T19 OU3-R7- T19W-S07-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S07-Z2 10/4/2019	Phase IIB 07 T20 OU3-R7- T20W-S01-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S01-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S02-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S02-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S03-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S03-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S04-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S04-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S05-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S05-Z2 10/1/2019	Phase IIB 07 T21 OU3-R7-T21E- S01-Z1 10/3/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.042 U	0.041 U	0.039 J-	0.011 J-	0.043 UJ	0.045 UJ	0.041 U	0.039 U	0.38	0.79	0.018 J	0.094	0.053 UJ
PCB-1254 (Aroclor 1254)	0.042 U	0.041 U	0.029 J-	0.011 J-	0.043 UJ	0.045 UJ	0.041 U	0.039 U	0.32	0.81 J	0.029 J	0.059	0.053 UJ
PCB-1260 (Aroclor 1260)	0.042 U	0.041 U	0.054 UJ	0.049 UJ	0.043 UJ	0.045 UJ	0.041 U	0.039 U	0.055 U	0.056 U	0.042 U	0.039 U	0.053 UJ
PCB, Total ⁽¹⁾	0.042 U	0.041 U	0.068 J-	0.022 J-	0.043 UJ	0.045 UJ	0.041 U	0.039 U	0.7 J	1.6 J	0.047 J	0.153 J	0.053 UJ
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0041 U	0.0041 U	0.0033 J	0.0011 J	0.0043 U	0.0024 J	0.0041 U	0.00082 J	0.0046 J	0.0016 J	0.0012 J	0.00086 J	0.27 U
4-Bromophenyl Phenyl Ether	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.28 U	0.29 U	0.21 U	0.2 U	0.27 U
4-Chloroaniline	0.41 U	0.41 U	0.54 U	0.49 U	0.43 U	0.45 U	0.41 U	0.39 U	0.55 U	0.56 U	0.42 U	0.39 U	0.53 U
4-Chlorophenyl Phenyl Ether	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.28 U	0.29 U	0.21 U	0.2 U	0.27 U
Acenaphthene	0.0041 U	0.0041 U	0.008	0.0013 J	0.0031 J	0.032	0.0041 U	0.0023 J	0.01	0.0021 J	0.0042 U	0.0039 U	0.0023 J
Acenaphthylene	0.0041 U	0.0041 U	0.006	0.0042 J	0.0012 J	0.003 J	0.0024 J	0.0033 J	0.036	0.0044 J	0.0039 J	0.003 J	0.0036 J
Acetophenone	0.41 U	0.41 U	0.54 U	0.49 U	0.43 U	0.45 U	0.41 U	0.39 U	0.55 U	0.56 U	0.42 U	0.39 U	0.53 U
Anthracene	0.0041 U	0.0041 U	0.02	0.0057	0.012	0.11	0.0019 J	0.0096	0.05	0.0094	0.0018 J	0.0023 J	0.0079
Benzaldehyde	0.41 U	0.41 U	0.54 U	0.49 U	0.43 U	0.45 U	0.41 U	0.39 U	0.55 U	0.56 U	0.42 U	0.39 U	0.53 U
Benzo(A)Anthracene	0.0019 J	0.0016 J	0.093	0.033	0.069	0.44	0.016	0.066	0.35	0.4	0.016	0.014	0.042
Benzo(A)Pyrene	0.0018 J	0.0015 J	0.08	0.035	0.078	0.4	0.017	0.08	0.36	0.39	0.029	0.019	0.044
Benzo(B)Fluoranthene	0.003 J	0.0025 J	0.12	0.055	0.13	0.57	0.03	0.14	0.5	0.53	0.044	0.028	0.071
Benzo(G,H,I)Perylene	0.00098 J	0.0041 U	0.052	0.022	0.051	0.31	0.011	0.058	0.13	0.018	0.022	0.012	0.02
Benzo(K)Fluoranthene	0.0011 J	0.0041 U	0.034	0.016	0.04	0.16	0.0087	0.053	0.13	0.018	0.012	0.0093	0.021
Benzyl Butyl Phthalate	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.18 J	0.29 U	0.21 U	0.2 U	0.27 U
Bis(2-Ethylhexyl) Phthalate	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.14 J	0.58	0.21 U	2.4	0.27 U
Carbazole	0.41 U	0.41 U	0.54 U	0.49 U	0.43 U	0.053 J	0.41 U	0.39 U	0.55 U	0.56 U	0.42 U	0.39 U	0.53 U
Chrysene	0.0016 J	0.0014 J	0.083	0.032	0.074	0.5	0.018	0.072	0.38	0.41	0.014	0.013	0.038
Dibenz(A,H)Anthracene	0.0041 U	0.0041 U	0.015	0.006	0.013	0.055	0.0024 J	0.014	0.047	0.077 J	0.0053	0.0033 J	0.0075
Dibenzofuran	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.28 U	0.29 U	0.21 U	0.2 U	0.27 U
Diethyl Phthalate	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.28 U	0.073 J	0.21 U	0.2 U	0.27 U
Dimethyl Phthalate	0.42	0.4	0.34	0.44	0.37	0.27	0.33	0.32	0.62	0.56	0.51	0.44	0.5
Di-N-Butyl Phthalate	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.28 U	0.29 U	0.21 U	0.2 U	0.27 U
Di-N-Octylphthalate	0.41 U	0.41 U	0.54 U	0.49 U	0.43 U	0.45 U	0.41 U	0.39 U	0.55 U	0.56 U	0.42 U	2.3	0.53 U
Fluoranthene	0.0033 J	0.003 J	0.14	0.054	0.2	1.4	0.041	0.16	0.61	0.71	0.014	0.017	0.072
Fluorene	0.0041 U	0.0041 U	0.0069	0.0018 J	0.0038 J	0.036	0.0041 U	0.0028 J	0.014	0.0036 J	0.0042 U	0.0039 U	0.0023 J
Hexachlorobenzene	0.21 U	0.21 U	0.28 U	0.25 U	0.22 U	0.23 U	0.21 U	0.2 U	0.28 U	0.29 U	0.21 U	0.2 U	0.27 U
Indeno(1,2,3-C,D)Pyrene	0.00092 J	0.0041 U	0.047	0.022	0.052	0.28	0.01	0.055	0.13	0.016	0.018	0.0099	0.023
Naphthalene	0.0041 U	0.0041 U	0.0029 J	0.0015 J	0.0043 U	0.0024 J	0.0041 U	0.00082 J	0.0061	0.0018 J	0.0017 J	0.00094 J	0.002 J
Pentachlorophenol	0.0084 U	0.0083 U	0.011 U	0.01 U	0.0088 U	0.0092 U	0.0083 U	0.0078 U	0.011 U	0.011 U	0.0085 U	0.0079 U	0.011 U
Phenanthrene	0.0016 J	0.0014 J	0.096	0.026	0.087	0.79	0.013	0.06	0.16	0.036	0.0028 J	0.0057	0.033
Phenol	0.15 J	0.12 J	0.12 J	0.095 J	0.078 J	0.1 J	0.042 J	0.39 U	0.17 J	0.11 J	0.1 J	0.1 J	0.19 J
Pyrene	0.0034 J	0.003 J	0.16	0.066	0.15	1	0.03	0.23	0.64	0.67	0.015	0.018	0.065

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Analytes	Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIB 07 T19 OU3-R7- T19W-S07-Z1 10/4/2019	Phase IIB 07 T19 OU3-R7- T19W-S07-Z2 10/4/2019	Phase IIB 07 T20 OU3-R7- T20W-S01-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S01-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S02-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S02-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S03-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S03-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S04-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S04-Z2 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S05-Z1 10/1/2019	Phase IIB 07 T20 OU3-R7- T20W-S05-Z2 10/1/2019	Phase IIB 07 T21 OU3-R7-T21E- S01-Z1 10/3/2019
PAH Mixtures ⁽¹⁾		0.0196 J	0.0144 J	0.9671 J	0.3826 J	0.9641 J	6.0908 J	0.2014 J	1.00764 J	3.5577 J	3.2979 J	0.2007 J	0.1563 J	0.4559 J
PAH, Total HMW ⁽¹⁾		0.018 J	0.013 J	0.824	0.341	0.857	5.115	0.1841 J	0.928	3.277	3.239 J	0.1893	0.1435 J	0.4035
PAH, Total LMW ⁽¹⁾		0.0016 J	0.0014 J	0.1431 J	0.0416 J	0.1071 J	0.9758 J	0.0173 J	0.07964 J	0.2807 J	0.0589 J	0.0114 J	0.0128 J	0.0524 J
Metals (mg/kg)														
Antimony		0.92 U	0.89 U	1.2 U	1.1 U	0.94 U	1 U	0.87 U	0.83 U	1.2 U	1.2 U	1.2	0.87 U	1.2 U
Arsenic		1.9	1.7	3.9	6	4.1	4.1	3.9	3.9	5.1	6.1	7.1 J	3.9	6.2
Barium		36.7	33.8	143	184	65.7	69.4	65.8	64.7	149	178	160	107	189
Beryllium		0.46 U	0.44 U	0.62	0.72	0.47 U	0.5 U	0.44 U	0.41 U	0.62 U	0.62	0.57	0.47	0.67
Cadmium		0.46 U	0.44 U	1.2	1.4	0.052 J	0.11 J	0.44 U	0.083 J	1.5	2	1.1 J	0.28 J	0.94
Chromium, Total		5	4.7	60.7	56.7	8.6	9.4	9.3	9.5	77.7	108	53.9	23.8	39.5
Cobalt		4.3	3.9	9.4	12.1	4.8	4.9	5.4	5.8	10.8	12	10.5	10.4	10
Copper		7.6	7.2	133	120	10.4	12.3	8.5	13.2	242	310	116	46.5	89.6
Lead		11.9	13.7	199	195	17.3	18.6	10.8	15.4	247	338	168	53.4	163
Manganese		277	248	274	887	346	331	290	507	642	605	741	608	1020
Nickel		4.6	4.3	37.3	39.8	10.5	11.1	11.2	12.4	46.3	59.1	36.2	25.4	34.2
Selenium		0.34 J	0.45 J	2.9 U	2.8 U	2.4 U	2.5 U	2.2 U	2.1 U	3.1 U	1.1 J	0.38 J	2.2 U	0.76 J
Silver		0.46 U	0.44 U	0.84	0.69	0.47 U	0.5 U	0.44 U	0.41 U	1.6	2.3	0.77	0.44 U	0.62
Vanadium		8.8	9.3	20.5	22.5	13.4	13.9	15	14.1	19.6	22.3	19.3	16.2	18.3
Zinc		20.1	22.6	471	401	38.8 J	45.6	26.3	42.4	619	810	388	140	293
Mercury (mg/kg)														
Mercury		0.028 J	0.034 J	0.65	0.65	0.053 J	0.051 J	0.044 J	0.048 J	0.83	0.13 J	0.077 J	0.19	1.3

Key:

- J = Estimated value
- J+ = Estimated value with high bias
- J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

- U = Not detected (quantitation limit shown)
- UJ = Not detected/estimated detection limit
- UJ- = Not detected/estimated detection limit with low bias

Other

- mg/kg = Milligrams per kilogram
- = Analyte not analyzed for
- "-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

- "-Z2" denotes sample depth 6-12 inches
- "-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

- SVOC = Semivolatile Organic Compounds
- PAH = Polycyclic aromatic hydrocarbon
- PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T21 OU3-R7-T21E- S01-Z2 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S01-Z3 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S02-Z1 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S02-Z2 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- FD 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S02-Z3 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S03-Z1 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S03-Z2 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S03-Z3 10/3/2019	Phase IIB 07 T22 OU3-R7-T22E- S01-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S01-Z2 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S02-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S02-Z2 10/1/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.047 U	0.046 U	0.0079 J	0.047 U	0.047 U	0.043 U	0.058 UJ	0.047 U	0.047 U	0.053 U	0.046 U	0.041 U	0.044 U
PCB-1254 (Aroclor 1254)	0.047 U	0.046 U	0.0072 J	0.047 U	0.047 U	0.043 U	0.058 UJ	0.047 U	0.047 U	0.053 U	0.0087 J	0.041 U	0.0086 J
PCB-1260 (Aroclor 1260)	0.047 U	0.046 U	0.052 U	0.047 U	0.047 U	0.043 U	0.058 UJ	0.047 U	0.047 U	0.053 U	0.011 J	0.041 U	0.013 J
PCB, Total ⁽¹⁾	0.047 U	0.046 U	0.0151 J	0.047 U	0.047 U	0.043 U	0.058 UJ	0.047 U	0.047 U	0.053 U	0.0197 J	0.041 U	0.0216 J
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.24 U	0.0046 U	0.27 U	0.24 UJ	0.24 U	0.0043 U	0.3 U	0.24 U	0.24 U	0.0025 J	0.0023 J	0.001 J	0.001 J
4-Bromophenyl Phenyl Ether	0.24 U	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.21 U	0.23 U
4-Chloroaniline	0.47 U	0.46 U	0.52 U	0.47 UJ	0.47 U	0.43 U	0.58 U	0.47 U	0.46 U	0.53 U	0.46 U	0.41 U	0.44 U
4-Chlorophenyl Phenyl Ether	0.24 U	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.21 U	0.23 U
Acenaphthene	0.014	0.0046 U	0.0024 J	0.014	0.0093	0.00093 J	0.0044 J	0.012	0.0051	0.0032 J	0.0025 J	0.0011 J	0.0044 U
Acenaphthylene	0.011	0.0012 J	0.0059	0.0044 J	0.0037 J	0.0043 U	0.0048 J	0.0025 J	0.0046 U	0.01	0.0082	0.0034 J	0.0028 J
Acetophenone	0.47 U	0.46 U	0.52 U	0.47 UJ	0.47 U	0.43 U	0.58 U	0.47 U	0.46 U	0.53 U	0.46 U	0.41 U	0.44 U
Anthracene	0.056	0.0018 J	0.0096	0.036	0.027	0.0017 J	0.029	0.028	0.01	0.013	0.01	0.0045	0.003 J
Benzaldehyde	0.47 U	0.46 U	0.52 U	0.47 UJ	0.47 U	0.43 U	0.58 U	0.47 U	0.46 U	0.53 U	0.46 U	0.41 U	0.44 U
Benzo(A)Anthracene	0.095	0.012	0.051	0.074	0.052	0.0034 J	0.088	0.067	0.015	0.07	0.05	0.025	0.016
Benzo(A)Pyrene	0.099	0.012	0.05	0.063	0.041	0.0022 J	0.069	0.058	0.0093	0.067	0.045	0.024	0.015
Benzo(B)Fluoranthene	0.13	0.017	0.085	0.094	0.064	0.0034 J	0.11	0.087	0.014	0.14	0.067	0.042	0.027
Benzo(G,H,I)Perylene	0.064	0.0069	0.022	0.024	0.015	0.00091 J	0.024	0.025	0.0031 J	0.038	0.023	0.015	0.0093
Benzo(K)Fluoranthene	0.085	0.0049	0.02	0.026	0.021	0.0012 J	0.036	0.024	0.004 J	0.029	0.022	0.012	0.0077
Benzyl Butyl Phthalate	0.05 J	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.21 U	0.23 U
Bis(2-Ethylhexyl) Phthalate	0.089 J	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.053 J	0.14 J
Carbazole	0.47 U	0.46 U	0.52 U	0.47 UJ	0.47 U	0.43 U	0.58 U	0.47 U	0.46 U	0.53 U	0.46 U	0.41 U	0.44 U
Chrysene	0.081	0.0099	0.047	0.059	0.041	0.0025 J	0.07	0.054	0.011	0.063	0.044	0.024	0.017
Dibenz(A,H)Anthracene	0.064	0.0017 J	0.008	0.0084	0.008	0.0043 U	0.011	0.011	0.0011 J	0.01	0.0066	0.0038 J	0.0024 J
Dibenzofuran	0.24 U	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.21 U	0.23 U
Diethyl Phthalate	0.24 U	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.21 U	0.23 U
Dimethyl Phthalate	0.35	0.43	0.41	0.34 J	0.38	0.46	0.59	0.55	0.33	0.74	0.65	0.57	0.59
Di-N-Butyl Phthalate	0.24 U	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.21 U	0.23 U
Di-N-Octylphthalate	0.078 J	0.46 U	0.52 U	0.47 UJ	0.47 U	0.43 U	0.58 U	0.47 U	0.46 U	0.53 U	0.46 U	0.41 U	0.44 U
Fluoranthene	0.11	0.017	0.086	0.14	0.085	0.0057	0.14	0.12	0.028	0.13	0.085	0.054	0.034
Fluorene	0.024	0.0046 U	0.0028 J	0.014	0.011	0.00093 J	0.0069	0.011	0.0046	0.0036 J	0.003 J	0.0013 J	0.0044 U
Hexachlorobenzene	0.057 J	0.24 U	0.27 U	0.24 UJ	0.24 U	0.22 U	0.3 U	0.24 U	0.24 U	0.28 U	0.24 U	0.21 U	0.23 U
Indeno(1,2,3-C,D)Pyrene	0.072	0.0057	0.027	0.026	0.019	0.0043 U	0.03	0.026	0.0033 J	0.035	0.022	0.014	0.0075
Naphthalene	0.0017 J	0.0046 U	0.0024 J	0.0046 J	0.0028 J	0.0043 U	0.0024 J	0.0037 J	0.0046 U	0.0032 J	0.0028 J	0.00099 J	0.0011 J
Pentachlorophenol	0.0027 J	0.0093 U	0.011 U	0.0095 U	0.0096 U	0.0087 U	0.012 U	0.0096 U	0.0094 U	0.011 U	0.0093 U	0.0083 U	0.0019 J
Phenanthrene	0.074	0.0078	0.043	0.14	0.09	0.0075	0.096	0.12	0.037	0.053	0.043	0.021	0.013
Phenol	0.12 J	0.11 J	0.18 J	0.074 J	0.1 J	0.14 J	0.19 J	0.19 J	0.15 J	0.14 J	0.12 J	0.11 J	0.12 J
Pyrene	0.12	0.016	0.084	0.15 J	0.086 J	0.0055	0.13	0.12	0.026	0.13	0.094	0.04	0.028

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T21 OU3-R7-T21E- S01-Z2 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S01-Z3 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S02-Z1 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S02-Z2 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- FD 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S02-Z3 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S03-Z1 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S03-Z2 10/3/2019	Phase IIB 07 T21 OU3-R7-T21E- S03-Z3 10/3/2019	Phase IIB 07 T22 OU3-R7-T22E- S01-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S01-Z2 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S02-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S02-Z2 10/1/2019
PAH Mixtures ⁽¹⁾	1.1034 J	0.1139 J	0.5477 J	0.8811 J	0.5793 J	0.03587 J	0.8533 J	0.7724 J	0.1726 J	0.8005 J	0.5304 J	0.28709 J	0.1848 J
PAH, Total HMW ⁽¹⁾	0.92	0.1031 J	0.48	0.6644 J	0.432 J	0.02481 J	0.708	0.592	0.1148 J	0.712	0.4586	0.2538 J	0.1639 J
PAH, Total LMW ⁽¹⁾	0.1834 J	0.0108 J	0.0677 J	0.2167 J	0.1473 J	0.01106 J	0.1453 J	0.1804 J	0.0578 J	0.0885 J	0.0718 J	0.03329 J	0.0209 J
Metals (mg/kg)													
Antimony	1 U	1 U	1.2 U	1 U	1 U	0.93 U	1.3 U	1.1 U	1 U	1.2 U	1 U	0.92 U	0.95 U
Arsenic	6.9	4.9	6.2	6.2	6.3	3.6	5.5	6.8	3.1	5.6	5.1	4.2	5.2
Barium	239	204	199	218	219	175	217	276	258	133	130	66.3	79.2
Beryllium	0.69	0.67	0.67	0.72	0.72	0.64	0.71	0.78	0.89	0.6 U	0.53	0.46 U	0.49
Cadmium	0.94	0.56	1	0.74	0.79	0.54	0.95	0.77	0.76	0.81	0.78	0.7	0.93
Chromium, Total	37	17.6	42.8	27.3	28.5	17.4	37.4	30.4	16.2	48	44.3	11.6	16.1
Cobalt	10.6	9.7	10.1	10.3	10.4	10.4	9.7	10.9	10.3	9.5	9.1	6.8	9.5
Copper	83.5	36.3	110	67.3	70.5	32.2	93.4	71.2	26	111	122	32.3	70.1
Lead	168	65.9	193	128	137	48.6	158	138	27.4	197	235	58	70.1
Manganese	1190	1390	877	888	965	1180	855	1230	786	644	575	584	608
Nickel	33.5	19	34.3	25.2	26	18.1	33.1	26.5	20.6	40.3	37.7	16.7	47
Selenium	0.99 J	0.68 J	0.96 J	0.83 J	0.76 J	0.63 J	1.1 J	0.85 J	0.75 J	0.65 J	0.56 J	2.3 U	2.4 U
Silver	0.55	0.5 U	0.73	0.51 U	0.51 U	0.46 U	0.63 U	0.53 U	0.51 U	0.6 U	0.52	0.46 U	0.47 U
Vanadium	18.2	15.4	18.3	17.5	17.2	16.1	18.8	18.8	18.9	20	20.4	14.3	20.1
Zinc	254	115	346	192	204	113	294	194	106	388	304	182	238
Mercury (mg/kg)													
Mercury	2	0.94	1.2	1.8	1.7	0.28	1.1	2	0.32	0.13 J	0.092 J	0.12	0.2

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T22 OU3-R7-T22E- S03-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S03-Z2 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S04-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S04-Z2 10/1/2019	Phase IIB 07 T23 OU3-R7-T23E- S01-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S01-Z2 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S02-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S02-Z2 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S03-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S03-Z2 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- FD 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S04-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S04-Z2 9/30/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.044 U	0.0069 J	0.84	1 J	0.25	0.17 J-	0.046 U	0.042 U	5	0.064 J	0.12	0.045 U	0.044 U
PCB-1254 (Aroclor 1254)	0.044 U	0.012 J	1	1	0.18	0.13 J-	0.046 U	0.042 U	7.6	0.26	0.16	0.045 U	0.044 U
PCB-1260 (Aroclor 1260)	0.044 U	0.044 U	0.047 U	0.046 U	0.056 U	0.058 UJ	0.046 U	0.042 U	0.048 U	0.042 U	0.043 U	0.045 U	0.044 U
PCB, Total ⁽¹⁾	0.044 U	0.0189 J	1.84 J	2 J	0.43 J	0.3 J-	0.046 U	0.042 U	12.6 J	0.324 J	0.28 J	0.045 U	0.044 U
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0044 U	0.0013 J	0.032	0.035	0.0064	0.0023 J	0.0046 U	0.00096 J	0.014	0.0061	0.0078	0.0045 U	0.0072
4-Bromophenyl Phenyl Ether	0.23 U	0.23 U	0.24 U	0.23 U	0.29 U	0.3 U	0.24 U	0.22 U	0.25 U	0.22 U	0.22 U	0.23 U	0.23 U
4-Chloroaniline	0.44 U	0.44 U	0.47 U	0.46 U	0.56 U	0.58 U	0.46 U	0.42 U	0.48 U	0.42 U	0.43 U	0.45 U	0.44 U
4-Chlorophenyl Phenyl Ether	0.23 U	0.23 U	0.24 U	0.23 U	0.29 U	0.3 U	0.24 U	0.22 U	0.25 U	0.22 U	0.22 U	0.23 U	0.23 U
Acenaphthene	0.0015 J	0.0019 J	0.056	0.086	0.017	0.0081	0.0011 J	0.0011 J	0.027	0.013	0.013	0.0045 U	0.017
Acenaphthylene	0.0035 J	0.0034 J	0.055	0.057	0.04	0.014	0.003 J	0.003 J	0.039	0.01	0.017	0.0045 U	0.0031 J
Acetophenone	0.44 U	0.44 U	0.47 U	0.46 U	0.56 U	0.58 U	0.46 U	0.42 U	0.48 U	0.42 U	0.43 U	0.45 U	0.44 U
Anthracene	0.0057	0.008	0.24	0.3	0.077	0.032	0.0032 J	0.0029 J	0.096	0.044	0.038	0.0013 J	0.11
Benzaldehyde	0.44 U	0.44 U	0.47 U	0.46 U	0.56 U	0.58 U	0.46 U	0.42 U	0.48 U	0.42 U	0.43 U	0.45 U	0.44 U
Benzo(A)Anthracene	0.027	0.029	1.2	1.3	0.57	0.16	0.017	0.015	0.65	0.21	0.26	0.0065	0.28
Benzo(A)Pyrene	0.024	0.023	1	1.2	0.54	0.16	0.022	0.017	0.66	0.19	0.23	0.0068	0.16
Benzo(B)Fluoranthene	0.041	0.042	1.5	1.5	0.74	0.23	0.034	0.027	0.81	0.26	0.28	0.011	0.26
Benzo(G,H,I)Perylene	0.013	0.012	0.69	0.79	0.29	0.069	0.0098	0.0066	0.38	0.061	0.086	0.0029 J	0.042
Benzo(K)Fluoranthene	0.011	0.013	0.42	0.39	0.18	0.073	0.01	0.0079	0.29	0.067	0.066	0.0036 J	0.082
Benzyl Butyl Phthalate	0.23 U	0.23 U	0.24 U	0.23 U	0.13 J	0.3 U	0.24 U	0.22 U	0.093 J	0.22 U	0.22 U	0.23 U	0.23 U
Bis(2-Ethylhexyl) Phthalate	0.23 U	0.57	1.1	1.4	0.33	0.12 J	0.24 U	0.22 U	3.3	0.8 J	0.19 J	0.23 U	0.23 U
Carbazole	0.44 U	0.44 U	0.079 J	0.088 J	0.56 U	0.58 U	0.46 U	0.42 U	0.053 J	0.42 U	0.43 U	0.45 U	0.087 J
Chrysene	0.025	0.026	1.2	1.5	0.63	0.15	0.016	0.012	0.81	0.21 J	0.28	0.0062	0.25
Dibenz(A,H)Anthracene	0.0035 J	0.0037 J	0.15	0.24	0.073	0.026	0.0031 J	0.0024 J	0.088	0.022	0.029	0.0045 U	0.024
Dibenzofuran	0.23 U	0.23 U	0.24 U	0.23 U	0.29 U	0.3 U	0.24 U	0.22 U	0.25 U	0.22 U	0.22 U	0.23 U	0.23 U
Diethyl Phthalate	0.23 U	0.23 U	0.24 U	0.23 U	0.29 U	0.3 U	0.24 U	0.22 U	0.25 U	0.22 U	0.22 U	0.23 U	0.23 U
Dimethyl Phthalate	0.68	0.54	0.63	0.58	0.75	0.64	0.56	0.47	0.66	0.51	0.58	0.42	0.55
Di-N-Butyl Phthalate	0.23 U	0.23 U	0.24 U	0.06 J	0.29 U	0.3 U	0.24 U	0.22 U	0.23 J	0.22 U	0.22 U	0.23 U	0.23 U
Di-N-Octylphthalate	0.44 U	0.052 J	0.47 U	0.083 J	0.56 U	0.58 U	0.46 U	0.42 U	0.48 U	0.42 U	0.43 U	0.45 U	0.44 U
Fluoranthene	0.057	0.047	1.7	1.9	0.96	0.24	0.031	0.025	1.1	0.42	0.25	0.011	0.48
Fluorene	0.0017 J	0.0032 J	0.052	0.067	0.021	0.0087	0.0046 U	0.00098 J	0.031	0.014	0.012	0.0045 U	0.029
Hexachlorobenzene	0.23 U	0.23 U	0.24 U	0.23 U	0.29 U	0.3 U	0.24 U	0.22 U	0.25 U	0.22 U	0.22 U	0.23 U	0.23 U
Indeno(1,2,3-C,D)Pyrene	0.012	0.011	0.54	0.63	0.3	0.076	0.011	0.0085	0.36	0.066	0.088	0.0031 J	0.056
Naphthalene	0.00094 J	0.0017 J	0.029	0.03	0.0083	0.0031 J	0.0046 U	0.0012 J	0.016	0.0074	0.0068	0.0045 U	0.0073
Pentachlorophenol	0.009 U	0.009 U	0.0042 J	0.0046 J	0.0015 J	0.012 U	0.0094 U	0.0086 U	0.0052 J	0.0014 J	0.0087 U	0.0091 U	0.0089 U
Phenanthrene	0.026	0.031	1.2	1.4	0.4	0.12	0.013	0.013	0.54	0.26	0.22	0.0055	0.42
Phenol	0.13 J	0.12 J	0.14 J	0.12 J	0.25 J	0.24 J	0.19 J	0.15 J	0.2 J	0.17 J	0.092 J	0.14 J	0.18 J
Pyrene	0.043	0.043	2	2.4	1	0.36	0.026	0.021	1.3	0.36	0.42	0.011	0.4

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T22 OU3-R7-T22E- S03-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S03-Z2 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S04-Z1 10/1/2019	Phase IIB 07 T22 OU3-R7-T22E- S04-Z2 10/1/2019	Phase IIB 07 T23 OU3-R7-T23E- S01-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S01-Z2 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S02-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S02-Z2 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S03-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S03-Z2 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- FD 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S04-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S04-Z2 9/30/2019
PAH Mixtures ⁽¹⁾	0.29584 J	0.3002 J	12.064	13.825	5.8527	1.7322 J	0.2002 J	0.16554 J	7.211	2.2205 J	2.3036	0.0689 J	2.6276 J
PAH, Total HMW ⁽¹⁾	0.2565 J	0.2497 J	10.4	11.85	5.283	1.544	0.1799 J	0.1424 J	6.448	1.866 J	1.989	0.0621 J	2.034
PAH, Total LMW ⁽¹⁾	0.03934 J	0.0505 J	1.664	1.975	0.5697	0.1882 J	0.0203 J	0.02314 J	0.763	0.3545	0.3146	0.0068 J	0.5936 J
Metals (mg/kg)													
Antimony	1 U	0.94 U	3	3.9	1.3	2.1	1 U	0.9 U	1.5	0.88 U	0.95 U	0.98 U	0.96 U
Arsenic	4.1	4.9	11.4	14.4	5.8	6.6	5.7	6.3	7.4	10.9	10.4	10.3	9.1
Barium	71.4	87.5	262	378	180	224	120	131	187	203	195	97.6	142
Beryllium	0.5 U	0.47 U	0.51 U	0.59	0.59 U	0.61 U	0.62	0.65	0.58	0.67	0.59	0.55	0.64
Cadmium	0.9	2	2.9	2.1	1.7	3.4	0.49 J	0.5	3.2	1.2	1.2	0.34 J	0.44 J
Chromium, Total	12.9	14.8	162	87.7	85.3	170	25	26	161	47	45.4	20.2	26
Cobalt	7.8	9.4	12.8	10.8	10.3	13.1	10.5	10.7	14.3	10.7	10.2	10.9	11
Copper	37.2	100	516	494	286	422	49	49.9	373	144	134	33.8	50
Lead	65.8	88.2	841	776	319	569	78.7	86.3	495	213	207	68.6	99.9
Manganese	637	812	568	479	856	898	644	642	793	906	883	676	774
Nickel	20.5	22.8	109	63.7	54.7	103	26.2	26.8	129	40.4	37.3	22.5	26.3
Selenium	2.5 U	2.3 U	2.5 U	2.5 U	2.9 U	3 U	2.5 U	2.3 U	2.5 U	2.2 U	2.4 U	2.5 U	2.4 U
Silver	0.5 U	0.47 U	2.8	2.4	2	2.8	0.3 J	0.27 J	2.5	0.7	1.1	0.21 J	0.29 J
Vanadium	15.5	18.9	23.6	19.2	19.8	25.9	19.1	19.4	25.7	18.4	17.1	19.5	19.8
Zinc	178	348	1530	1100	681	1300	153	150	1270	368	351	115	151
Mercury (mg/kg)													
Mercury	0.19	0.44	6.7	4.6	0.91	0.97	0.46	0.51	1.1	1.6	1.7	0.53	1

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T23 OU3-R7-T23E- S05-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S05-Z2 9/30/2019	Phase IIB 07 T24 OU3-R7-T24E- S01-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S01-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S02-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S02-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S03-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S03-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S04-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S04-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S05-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S05-Z2 10/3/2019	Phase IIB 07 T25 OU3-R7-T25E- S01-Z1 10/2/2019
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.045 U	0.041 U	0.17	0.074 J	0.041 J	0.099	0.048 U	0.044 U	0.044 U	0.041 U	0.043 U	0.039 U	0.046 UJ
PCB-1254 (Aroclor 1254)	0.045 U	0.041 U	0.13	0.19	0.046 J	0.15	0.048 U	0.044 U	0.044 U	0.041 U	0.043 U	0.039 U	0.046 UJ
PCB-1260 (Aroclor 1260)	0.045 U	0.041 U	0.047 U	0.15	0.057 U	0.053 U	0.048 U	0.044 U	0.044 U	0.041 U	0.043 U	0.039 U	0.046 UJ
PCB, Total ⁽¹⁾	0.045 U	0.041 U	0.3 J	0.414 J	0.087 J	0.249 J	0.048 U	0.044 U	0.044 U	0.041 U	0.043 U	0.039 U	0.046 UJ
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.0045 U	0.0041 U	0.017	0.012	0.0078	0.0082	0.0014 J	0.0044 U	0.0044 U	0.0041 U	0.0043 U	0.0039 U	0.0046 U
4-Bromophenyl Phenyl Ether	0.23 U	0.21 U	0.24 U	0.23 U	0.29 U	0.27 U	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
4-Chloroaniline	0.45 U	0.41 U	0.47 U	0.45 U	0.57 U	0.53 U	0.48 U	0.44 U	0.44 U	0.41 U	0.43 U	0.39 U	0.46 U
4-Chlorophenyl Phenyl Ether	0.23 U	0.21 U	0.24 U	0.23 U	0.29 U	0.27 U	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
Acenaphthene	0.0045 U	0.0041 U	0.037	0.019	0.02	0.014	0.003 J	0.0044 U	0.0044 U	0.0041 U	0.0043 U	0.0039 U	0.0031 J
Acenaphthylene	0.0045 U	0.0009 J	0.056	0.06	0.027	0.026	0.0041 J	0.0025 J	0.0044 U	0.0041 U	0.0043 U	0.0039 U	0.0024 J
Acetophenone	0.45 U	0.41 U	0.47 U	0.45 U	0.57 U	0.53 U	0.48 U	0.44 U	0.44 U	0.41 U	0.43 U	0.39 U	0.46 U
Anthracene	0.0011 J	0.00092 J	0.13	0.15	0.069	0.06	0.011	0.0035 J	0.0044 U	0.0041 U	0.0043 U	0.0039 U	0.0075
Benzaldehyde	0.45 U	0.41 U	0.47 U	0.45 U	0.57 U	0.53 U	0.48 U	0.44 U	0.44 U	0.41 U	0.43 U	0.39 U	0.46 U
Benzo(A)Anthracene	0.0042 J	0.0041	0.95	0.6	0.35	0.33	0.047	0.017	0.0013 J	0.0015 J	0.0016 J	0.0027 J	0.022
Benzo(A)Pyrene	0.0045	0.0039 J	0.97	0.54	0.35	0.32	0.038	0.017	0.0013 J	0.0015 J	0.0015 J	0.0026 J	0.022
Benzo(B)Fluoranthene	0.0094	0.0061	1.3	0.74	0.45	0.43	0.057	0.026	0.0023 J	0.0025 J	0.0028 J	0.0043	0.035
Benzo(G,H,I)Perylene	0.0019 J	0.002 J	0.58	0.29	0.13	0.12	0.016	0.007	0.00094 J	0.0041 U	0.0009 J	0.0016 J	0.011
Benzo(K)Fluoranthene	0.003 J	0.002 J	0.39	0.23	0.14	0.14	0.02	0.0078	0.0044 U	0.0041 U	0.0043 U	0.0013 J	0.0092
Benzyl Butyl Phthalate	0.23 U	0.21 U	0.24 U	0.23 U	0.29 U	0.27 U	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
Bis(2-Ethylhexyl) Phthalate	0.23 U	0.21 U	0.75	0.36	0.15 J	1.4	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
Carbazole	0.45 U	0.41 U	0.08 J	0.45 U	0.57 U	0.53 U	0.48 U	0.44 U	0.44 U	0.41 U	0.43 U	0.39 U	0.46 U
Chrysene	0.0056	0.0035 J	1.1	0.64	0.4	0.38	0.042	0.016	0.0011 J	0.0013 J	0.0015 J	0.0023 J	0.018
Dibenz(A,H)Anthracene	0.0045 U	0.0041 U	0.12	0.074	0.051	0.047	0.0056	0.0031 J	0.0044 U	0.0041 U	0.0043 U	0.0039 U	0.003 J
Dibenzofuran	0.23 U	0.21 U	0.24 U	0.23 U	0.29 U	0.27 U	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
Diethyl Phthalate	0.23 U	0.21 U	0.24 U	0.23 U	0.29 U	0.27 U	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
Dimethyl Phthalate	0.45	0.47	0.65	0.45	0.51	0.53	0.54	0.42	0.31	0.33	0.38	0.35	0.42
Di-N-Butyl Phthalate	0.23 U	0.21 U	0.24 U	0.23 U	0.29 U	0.27 U	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
Di-N-Octylphthalate	0.45 U	0.41 U	0.47 U	0.45 U	0.19 J	0.53 U	0.48 U	0.44 U	0.44 U	0.41 U	0.43 U	0.39 U	0.46 U
Fluoranthene	0.0083	0.0071	1.7	1.1	0.72	0.55	0.074	0.027	0.0022 J	0.0026 J	0.003 J	0.0045	0.04
Fluorene	0.0045 U	0.0041 U	0.041	0.04	0.023	0.017	0.003 J	0.001 J	0.0044 U	0.0041 U	0.0043 U	0.0039 U	0.0028 J
Hexachlorobenzene	0.23 U	0.21 U	0.24 U	0.23 U	0.29 U	0.27 U	0.25 U	0.23 U	0.23 U	0.21 U	0.22 U	0.2 U	0.23 U
Indeno(1,2,3-C,D)Pyrene	0.0023 J	0.002 J	0.55	0.29	0.16	0.14	0.019	0.0089	0.0044 U	0.0041 U	0.0043 U	0.0015 J	0.011
Naphthalene	0.0045 U	0.0041 U	0.022	0.019	0.011	0.01	0.0018 J	0.001 J	0.0044 U	0.0041 U	0.0043 U	0.0039 U	0.0046 U
Pentachlorophenol	0.0014 J	0.0084 U	0.0018 J	0.0019 J	0.012 U	0.0015 J	0.0097 U	0.009 U	0.009 U	0.0083 U	0.0087 U	0.008 U	0.0092 U
Phenanthrene	0.0038 J	0.0046	0.76	0.62	0.35	0.29	0.045	0.014	0.0013 J	0.0014 J	0.0016 J	0.0024 J	0.031
Phenol	0.15 J	0.16 J	0.1 J	0.083 J	0.1 J	0.072 J	0.078 J	0.11 J	0.14 J	0.1 J	0.13 J	0.12 J	0.12 J
Pyrene	0.0084	0.0063	1.7	1	0.63	0.62	0.073	0.024	0.0022 J	0.0027 J	0.0027 J	0.0044	0.035

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T23 OU3-R7-T23E- S05-Z1 9/30/2019	Phase IIB 07 T23 OU3-R7-T23E- S05-Z2 9/30/2019	Phase IIB 07 T24 OU3-R7-T24E- S01-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S01-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S02-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S02-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S03-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S03-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S04-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S04-Z2 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S05-Z1 10/3/2019	Phase IIB 07 T24 OU3-R7-T24E- S05-Z2 10/3/2019	Phase IIB 07 T25 OU3-R7-T25E- S01-Z1 10/2/2019
PAH Mixtures ⁽¹⁾	0.0525 J	0.04342 J	10.423	6.424	3.8888	3.5022	0.4609 J	0.1758 J	0.01264 J	0.0135 J	0.0156 J	0.0276 J	0.253 J
PAH, Total HMW ⁽¹⁾	0.0476 J	0.037 J	9.36	5.504	3.381	3.077	0.3916	0.1538 J	0.01134 J	0.0121 J	0.014 J	0.0252 J	0.2062 J
PAH, Total LMW ⁽¹⁾	0.0049 J	0.00642 J	1.063	0.92	0.5078	0.4252	0.0693 J	0.022 J	0.0013 J	0.0014 J	0.0016 J	0.0024 J	0.0468 J
Metals (mg/kg)													
Antimony	1 U	0.93 U	1 U	0.97 U	1.2 U	1.1 U	1.1 U	0.97 U	0.96 U	0.89 U	0.93 U	0.86 U	1 U
Arsenic	9	11.8	5.8 J	7.7	6.1	6.6	5.4	5.7	2.9	3.1	3.3	3.6	4.6
Barium	52.5	52	174	188	144	149	99.8	130	28.7	28.8	48.2	44.3	133
Beryllium	0.5 U	0.47 U	0.53	0.58	0.61	0.63	0.63	0.72	0.48 U	0.45 U	0.47 U	0.47	0.67
Cadmium	0.096 J	0.037 J	1.5 J	1.6	1.1	1.3	0.52 U	0.63	0.48 U	0.45 U	0.47 U	0.43 U	0.28 J
Chromium, Total	11.8	11.1	83.9	88.9	71	77.7	23.1	19.6	10.9	10.7	11.9	11.5	18.1
Cobalt	6.9	6.9	10.7	11.1	11.1	12.2	10.6	10.7	7.9	7.9	9.5	9.5	10.8
Copper	12.5	9.8	232	279	202	217	47	38.7	9.6	8.7	8	7.4	43.3
Lead	40.8	42.1	329	478	302	362	79.8	71.5	11	11	12	12.6	57
Manganese	397	411	689	586	767	878	870	945	310	333	1510	1290	871
Nickel	15	14.4	60.1	64	60.4	67.3	26.9	24.5	15.3	15.2	16.6	16.3	22.5
Selenium	2.5 U	0.32 J	0.58 J	0.39 J	0.81 J	0.73 J	0.5 J	0.76 J	0.4 J	0.39 J	0.28 J	0.37 J	2.5 U
Silver	0.085 J	0.084 J	1.2	1.1	1	1.1	0.52 U	0.48 U	0.48 U	0.45 U	0.47 U	0.43 U	0.51 U
Vanadium	15.9	16.2	18.9	20.8	19.4	20.7	19.9	19.3	15.4	15.7	17.2	17.7	17.7
Zinc	50	42.3	704	793	606	635	170	133	44.6	44.9	50	50.8	119
Mercury (mg/kg)													
Mercury	0.082 J	0.08 J	1.7	2.5	1.2	1.4	0.4	0.55	0.047 J	0.037 J	0.049 J	0.043 J	6.9

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Phase: Reach No.: Transect No.: Sample ID: Sample Date: Analytes	Phase IIB 07 T25 OU3-R7-T25E- S01-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S02-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S02-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S03-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S03-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S04-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S04-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S05-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S05-Z2 10/2/2019
PCB Aroclor (mg/kg)									
PCB-1248 (Aroclor 1248)	0.046 UJ	0.044 U	0.042 U	0.072	0.073	0.94 J-	0.2	0.048 U	0.05 U
PCB-1254 (Aroclor 1254)	0.046 UJ	0.044 U	0.042 U	0.073	0.064	1.5 J-	0.21	0.048 U	0.05 U
PCB-1260 (Aroclor 1260)	0.046 UJ	0.044 U	0.042 U	0.052 U	0.047 U	0.066 UJ	0.064 U	0.048 U	0.05 U
PCB, Total ⁽¹⁾	0.046 UJ	0.044 U	0.042 U	0.145 J	0.137 J	2.44 J-	0.41 J	0.048 U	0.05 U
SVOCs + PAHs (mg/kg)									
2-Methylnaphthalene	0.0046 U	0.0044 U	0.0042 U	0.0084	0.0064	0.008	0.0027 J	0.0048 U	0.005 U
4-Bromophenyl Phenyl Ether	0.24 U	0.22 U	0.21 U	0.27 U	0.24 U	0.34 U	0.33 U	0.25 U	0.26 U
4-Chloroaniline	0.46 U	0.44 U	0.42 U	0.52 U	0.47 U	0.65 U	0.63 U	0.48 U	0.5 U
4-Chlorophenyl Phenyl Ether	0.24 U	0.22 U	0.21 U	0.27 U	0.24 U	0.34 U	0.33 U	0.25 U	0.26 U
Acenaphthene	0.0046 U	0.0044 U	0.0042 U	0.016	0.011	0.022	0.0039 J	0.0048 U	0.005 U
Acenaphthylene	0.0046 U	0.0044 U	0.0042 U	0.037	0.023	0.029	0.0099	0.0012 J	0.0012 J
Acetophenone	0.46 U	0.44 U	0.42 U	0.52 U	0.47 U	0.65 U	0.63 U	0.48 U	0.5 U
Anthracene	0.0046 U	0.0044 U	0.0042 U	0.065	0.047	0.078	0.018	0.0048 U	0.0031 J
Benzaldehyde	0.46 U	0.44 U	0.42 U	0.52 U	0.47 U	0.65 U	0.63 U	0.48 U	0.5 U
Benzo(A)Anthracene	0.0024 J	0.0044 U	0.0042 U	0.4	0.28	0.46	0.12	0.004 J	0.011
Benzo(A)Pyrene	0.0022 J	0.0044 U	0.0042 U	0.39	0.25	0.43	0.096	0.0043 J	0.008
Benzo(B)Fluoranthene	0.0037 J	0.0044 U	0.0042 U	0.58	0.35	0.59	0.15	0.0079	0.015
Benzo(G,H,I)Perylene	0.0046 U	0.0044 U	0.0042 U	0.19	0.12	0.15	0.044	0.0029 J	0.0036 J
Benzo(K)Fluoranthene	0.0046 U	0.0044 U	0.0042 U	0.17	0.1	0.17	0.046	0.0021 J	0.0046 J
Benzyl Butyl Phthalate	0.24 U	0.22 U	0.21 U	0.27 U	0.24 U	0.34 U	0.33 U	0.25 U	0.26 U
Bis(2-Ethylhexyl) Phthalate	0.24 U	0.22 U	0.21 U	0.091 J	0.11 J	1.3	0.22 J	0.25 U	0.26 U
Carbazole	0.46 U	0.44 U	0.42 U	0.52 U	0.47 U	0.65 U	0.63 U	0.48 U	0.5 U
Chrysene	0.0021 J	0.0044 U	0.0042 U	0.43	0.28	0.54	0.1	0.0045 J	0.0096
Dibenz(A,H)Anthracene	0.0046 U	0.0044 U	0.0042 U	0.053	0.034	0.08	0.016	0.0048 U	0.0011 J
Dibenzofuran	0.24 U	0.22 U	0.21 U	0.27 U	0.24 U	0.34 U	0.33 U	0.25 U	0.26 U
Diethyl Phthalate	0.24 U	0.22 U	0.21 U	0.27 U	0.24 U	0.34 U	0.33 U	0.25 U	0.26 U
Dimethyl Phthalate	0.43	0.39	0.34	0.64	0.49	0.96	0.91	0.59	0.53
Di-N-Butyl Phthalate	0.24 U	0.22 U	0.21 U	0.27 U	0.24 U	0.096 J	0.33 U	0.25 U	0.26 U
Di-N-Octylphthalate	0.46 U	0.44 U	0.42 U	0.52 U	0.47 U	0.65 U	0.63 U	0.48 U	0.5 U
Fluoranthene	0.0033 J	0.0044 U	0.0042 U	0.75	0.49	0.73	0.17	0.0066	0.023
Fluorene	0.0046 U	0.0044 U	0.0042 U	0.02	0.013	0.025	0.005 J	0.0048 U	0.0011 J
Hexachlorobenzene	0.24 U	0.22 U	0.21 U	0.27 U	0.24 U	0.34 U	0.33 U	0.25 U	0.26 U
Indeno(1,2,3-C,D)Pyrene	0.0046 U	0.0044 U	0.0042 U	0.18	0.11	0.18	0.046	0.0024 J	0.0039 J
Naphthalene	0.0046 U	0.0044 U	0.0042 U	0.0094	0.0071	0.01	0.0032 J	0.0011 J	0.005 U
Pentachlorophenol	0.0094 U	0.0088 U	0.0084 U	0.011 U	0.0095 U	0.013 U	0.013 U	0.0098 U	0.01 U
Phenanthrene	0.0014 J	0.0044 U	0.0042 U	0.33	0.24	0.35	0.069	0.0033 J	0.016
Phenol	0.11 J	0.095 J	0.074 J	0.15 J	0.11 J	0.17 J	0.15 J	0.1 J	0.097 J
Pyrene	0.003 J	0.0044 U	0.0042 U	0.71	0.43	0.88	0.18	0.0074	0.02

Table 3-2a Summary for Positive Analytical Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Analytes	Phase: Reach No.: Transect No.: Sample ID: Sample Date:	Phase IIB 07 T25 OU3-R7-T25E- S01-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S02-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S02-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S03-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S03-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S04-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S04-Z2 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S05-Z1 10/2/2019	Phase IIB 07 T25 OU3-R7-T25E- S05-Z2 10/2/2019
PAH Mixtures ⁽¹⁾		0.0181 J	0.0044 U	0.0042 U	4.3388	3.2815	4.732	1.0797 J	0.0477 J	0.1212 J
PAH, Total HMW ⁽¹⁾		0.0167 J	0.0044 U	0.0042 U	3.853	2.934	4.21	0.968	0.0421 J	0.0998 J
PAH, Total LMW ⁽¹⁾		0.0014 J	0.0044 U	0.0042 U	0.4858	0.3475	0.522	0.1117 J	0.0056 J	0.0214 J
Metals (mg/kg)										
Antimony		1 U	0.91 U	0.92 U	1.2 U	1 U	2.4	2.7	1 U	1.1 U
Arsenic		5.6	3.7	5	6.5	7.2	7.2	8	3.8	3.6
Barium		186	72.8	47	170	142	191	152	94.3	92.5
Beryllium		0.94	0.71	0.77	0.59 U	0.56	0.69 U	0.69 U	0.51 U	0.54 U
Cadmium		0.71	0.045 J	0.46 U	1.8	1.9	3.4	5.1	0.51 U	0.54 U
Chromium, Total		17.4	19.4	13.5	92.4	109	142	275	13.5	13.8
Cobalt		14.1	14.8	15.4	12.2	11.9	12.5	15.5	9.5	9.3
Copper		39.3	18.9	21.5	231	222	457	669	33.3	24.7
Lead		50.7	6.9	6.5	378	409	557	933	432	34.4
Manganese		2440	592	888	765	679	858	786	588	672
Nickel		26.9	29.6	21.3	65.6	73.7	93	177	19.3	19.2
Selenium		2.6 U	2.3 U	2.3 U	2.9 U	2.6 U	0.88 J	0.62 J	0.48 J	2.7 U
Silver		0.51 U	0.46 U	0.46 U	1.6	1.1	2.6	3.5	0.51 U	0.54 U
Vanadium		19.5	23.9	25.2	22.4	23.7	23.2	30	17.7	17.4
Zinc		127	57.8	43.7	794	822	1360	2420	330	140
Mercury (mg/kg)										
Mercury		0.23	0.02 J	0.019 J	0.99	0.86	1.2	1.1	0.06 J	0.083 J

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Notes

(1) Sum = Total of detect values in the analyte group.

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-2b Summary for Soil Quality Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.: Sample ID: Sample Date: Analytes	05 T05 OU3-R5-T05E- S05-Z1 7/31/2019	06 T06 OU3-R6-T06E- S05-Z1 7/26/2019	06 T06 OU3-R6-T06E- S07-Z2 7/26/2019	06 T08 OU3-R6-T08E- S06-Z2 7/31/2019	06 T08 OU3-R6-T08E- S07-Z1 7/31/2019	06 T08 OU3-R6-T08E- S08-Z2 7/31/2019	06 T09 OU3-R6-T09E- S08-Z1 7/25/2019	07 T11 OU3-R7- T11W-S06-Z1 7/26/2019	07 T11 OU3-R7- T11W-S06-Z3 7/26/2019	07 T11 OU3-R7- T11W-S08-Z2 7/26/2019
Organic Carbon, Total (mg/kg)										
Total Organic Carbon	95000	59000	6200	28000	26000	53000	7700	52000	9800	13000
Grain Size (% Weight)										
% Gravel	3.1	1.2	40	1.4	2.2	2.6	0.29	0.97	0.10	0.31
% Clay & Colloids	17	15	3.5	16	10	15	37	16	23	15
% Coarse Sand >.5-1 mm	3.4	0.47	8.4	0.46	0.92	1.7	0.10	0.36	0.12	0.36
% Fine Sand >.125-.25 mm	1.4	0.86	5.7	6.9	5.2	4.9	0.15	2.6	3.0	3.6
% Medium Sand >.25-5 mm	2.5	0.39	8.2	1.6	1.7	1.7	0.11	0.56	0.20	0.58
% Silt 0.002-0.05 mm	69	80	19	67	74	66	62	74	64	74
% Very Coarse Sand >1-2 mm	2.8	0.39	8.4	0.38	0.65	1.6	0.10	0.21	0.10	0.13
% Very Find Sand >.0625-.125 mm	0.83	2.2	6.8	6.0	5.3	5.7	0.51	5.5	9.2	6.5

Key:

mg/kg = Milligrams per kilogram

mm = Millimeter

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Table 3-2b Summary for Soil Quality Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.: Sample ID: Sample Date: Analytes	07 T11 OU3-R7- T11W-S08-Z3 7/26/2019	07 T12 OU3-R7-T12E S05-Z1 7/17/2019	07 T12 OU3-R7-T12E S08-Z1 7/17/2019	07 T12 OU3-R7-T12E S08-Z3 7/17/2019	07 T12 OU3-R7-T12E S10-Z1 10/7/2019	07 T12 OU3-R7-T12E S10-Z2 10/7/2019	07 T12 OU3-R7-T12E S11-Z1 10/7/2019	07 T12 OU3-R7-T12E S11-Z2 10/7/2019	07 T12 OU3-R7-T12E S13-Z1 10/7/2019	07 T12 OU3-R7-T12E S13-Z2 10/7/2019
Organic Carbon, Total (mg/kg)										
Total Organic Carbon	3800	94000	85000	56000	79000	46000	75000	50000	110000	76000
Grain Size (% Weight)										
% Gravel	0.10	3.7	11	2.3	5.8	5.5	11	12	7.8	9.2
% Clay & Colloids	18	13	4.5	14	6.1	20	1.8	13	9.9	14
% Coarse Sand >.5-1 mm	0.27	4.8	12	2.7	5.6	2.6	12	1.9	5.7	4.0
% Fine Sand >.125-.25 mm	4.6	1.8	11	2.9	6.5	3.2	14	3.4	2.3	1.2
% Medium Sand >.25-5 mm	0.48	3.6	13	2.8	6.9	2.5	17	2.5	3.5	2.0
% Silt 0.002-0.05 mm	66	69	36	69	60	59	31	63	64	65
% Very Coarse Sand >1-2 mm	0.16	3.3	7.4	2.4	4.2	2.9	8.3	1.5	5.9	3.7
% Very Find Sand >.0625-.125 mm	10	0.81	5.5	3.6	4.8	4.0	4.6	3.8	0.46	0.85

Key:
mg/kg = Milligrams per kilogram
mm = Millimeter
"-Z1" denotes sample depth 0-6 inches
"-Z2" denotes sample depth 6-12 inches
"-Z3" denotes sample depth 12-24 inches

Table 3-2b Summary for Soil Quality Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.: Sample ID: Sample Date: Analytes	07 T14 OU3-R7-T14E- S03-Z3 7/25/2019	07 T14 OU3-R7-T14E- S05-Z1 7/16/2019	07 T14 OU3-R7-T14E- S05-Z2 7/16/2019	07 T14 OU3-R7-T14E- S05-Z3 7/16/2019	07 T15 OU3-R7-T15E- S01-Z1 10/3/2019	07 T15 OU3-R7-T15E- S01-Z2 10/3/2019	07 T15 OU3-R7-T15E- S04-Z1 10/3/2019	07 T16 OU3-R7-T16E- S01-Z1 9/30/2019	07 T16 OU3-R7-T16E- S01-Z2 9/30/2019	07 T17 OU3-R7- T17W-S01-Z1 9/30/2019
Organic Carbon, Total (mg/kg)										
Total Organic Carbon	50000	89000	21000	44000	79000	72000	20000	46000	16000	53000
Grain Size (% Weight)										
% Gravel	0.73	2.6	5.6	5.4	1.9	2.2	0.12	1.1	0.33	2.3
% Clay & Colloids	19	11	8.4	10	17	15	24	16	18	16
% Coarse Sand >.5-1 mm	0.15	2.5	4.7	4.0	1.1	1.3	0.32	1.2	0.67	1.4
% Fine Sand >.125-.25 mm	0.20	4.0	8.0	7.8	4.4	3.5	0.36	5.2	3.0	4.1
% Medium Sand >.25-5 mm	0.10	3.3	5.5	5.0	1.5	1.3	0.20	1.7	0.95	1.8
% Silt 0.002-0.05 mm	79	72	53	54	65	68	74	65	70	64
% Very Coarse Sand >1-2 mm	0.15	2.0	4.9	4.2	0.86	0.73	0.44	0.96	0.43	0.67
% Very Find Sand >.0625-.125 mm	0.78	3.4	10	9.9	8.2	8.0	0.85	9.5	6.2	9.4

Key:
mg/kg = Milligrams per kilogram
mm = Millimeter
"-Z1" denotes sample depth 0-6 inches
"-Z2" denotes sample depth 6-12 inches
"-Z3" denotes sample depth 12-24 inches

Table 3-2b Summary for Soil Quality Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.: Sample ID: Sample Date: Analytes	07 T17 OU3-R7- T17W-S01-Z2 9/30/2019	07 T17 OU3-R7- T17W-S04-Z2 9/30/2019	07 T18 OU3-R7- T18W-S01-Z1 10/4/2019	07 T18 OU3-R7- T18W-S01-Z2 10/4/2019	07 T18 OU3-R7- T18W-S04-Z2 10/4/2019	07 T19 OU3-R7- T19W-S01-Z1 10/4/2019	07 T19 OU3-R7- T19W-S01-Z2 10/4/2019	07 T19 OU3-R7- T19W-S07-Z2 10/4/2019	07 T20 OU3-R7- T20W-S01-Z1 10/1/2019	07 T20 OU3-R7- T20W-S01-Z2 10/1/2019
Organic Carbon, Total (mg/kg)										
Total Organic Carbon	59000	1900	58000	51000	16000	78000	69000	9700	38000	29000
Grain Size (% Weight)										
% Gravel	1.6	0.16	2.2	0.57	0.42	1.9	1.8	0.15	1.2	0.76
% Clay & Colloids	17	32	12	15	16	12	11	15	18	20
% Coarse Sand >.5-1 mm	0.69	0.10	0.27	0.10	1.4	3.0	1.9	0.37	0.36	0.36
% Fine Sand >.125-.25 mm	2.2	0.19	0.49	0.42	1.5	4.7	3.2	0.98	0.59	0.76
% Medium Sand >.25-5 mm	1.0	0.10	0.43	0.10	1.6	3.1	1.8	0.57	0.36	0.36
% Silt 0.002-0.05 mm	71	67	82	82	76	63	70	81	77	75
% Very Coarse Sand >1-2 mm	0.44	0.10	0.16	0.10	0.85	1.9	1.3	0.30	0.32	0.36
% Very Find Sand >.0625-.125 mm	5.6	0.67	1.9	2.4	2.2	11	8.8	1.8	1.7	2.2

Key:

mg/kg = Milligrams per kilogram

mm = Millimeter

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Table 3-2b Summary for Soil Quality Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

	Reach No.: Transect No.: Sample ID: Sample Date:	07 T20 OU3-R7- T20W-S05-Z2 10/1/2019	07 T21 OU3-R7-T21E S01-Z1 10/3/2019	07 T21 OU3-R7-T21E S01-Z2 10/3/2019	07 T21 OU3-R7-T21E S01-Z3 10/3/2019	07 T21 OU3-R7-T21E S02-Z3 10/3/2019	07 T22 OU3-R7-T22E S01-Z1 10/1/2019	07 T22 OU3-R7-T22E S01-Z2 10/1/2019	07 T22 OU3-R7-T22E S04-Z1 10/1/2019	07 T23 OU3-R7-T23E S01-Z1 9/30/2019	07 T23 OU3-R7-T23E S01-Z2 9/30/2019
Analytes											
Organic Carbon, Total (mg/kg)											
Total Organic Carbon	9400	48000	24000	17000	19000	35000	29000	76000	63000	59000	
Grain Size (% Weight)											
% Gravel	25	1.7	0.51	0.17	0.50	1.5	0.47	1.5	1.4	1.1	
% Clay & Colloids	14	15	20	22	25	12	15	10	11	14	
% Coarse Sand >.5-1 mm	3.3	0.68	0.32	0.34	0.74	0.75	0.22	1.6	0.46	0.41	
% Fine Sand >.125-.25 mm	4.7	6.4	7.6	8.7	3.3	1.1	0.76	7.5	2.4	2.4	
% Medium Sand >.25-5 mm	3.5	1.4	1.2	0.99	0.74	0.75	0.28	2.7	0.86	0.79	
% Silt 0.002-0.05 mm	42	67	61	56	59	82	81	64	76	75	
% Very Coarse Sand >1-2 mm	3.6	0.32	0.20	0.24	0.62	0.66	0.32	0.53	0.23	0.21	
% Very Find Sand >.0625-.125 mm	4.4	7.9	10	12	10	1.3	1.4	12	7.2	6.1	

Key:

mg/kg = Milligrams per kilogram

mm = Millimeter

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Table 3-2b Summary for Soil Quality Results for Phase II (July 2019 October 2019) Floodplain Soils, Eighteen Mile Creek OU3, New York

	Reach No.: Transect No.: Sample ID: Sample Date:	07 T23 OU3-R7-T23E S02-Z2 9/30/2019	07 T24 OU3-R7-T24E S01-Z1 10/3/2019	07 T24 OU3-R7-T24E S01-Z2 10/3/2019	07 T24 OU3-R7-T24E S04-Z2 10/3/2019	07 T25 OU3-R7-T25E S01-Z1 10/2/2019	07 T25 OU3-R7-T25E S01-Z2 10/2/2019	07 T25 OU3-R7-T25E S02-Z1 10/2/2019	07 T25 OU3-R7-T25E S04-Z2 10/2/2019
Analytes									
Organic Carbon, Total (mg/kg)									
Total Organic Carbon		13000	44000	36000	8300	16000	21000	1300	70000
Grain Size (% Weight)									
% Gravel		0.10	0.77	0.66	2.0	0.51	0.11	0.10	1.9
% Clay & Colloids		20	15	18	14	20	26	30	14
% Coarse Sand >.5-1 mm		0.23	0.26	0.51	1.2	0.17	0.32	0.10	1.7
% Fine Sand >.125-.25 mm		1.9	5.4	7.3	7.2	2.8	1.4	0.10	2.0
% Medium Sand >.25-5 mm		0.47	1.5	2.3	5.4	0.28	0.32	0.10	1.4
% Silt 0.002-0.05 mm		74	70	64	66	70	68	70	72
% Very Coarse Sand >1-2 mm		0.23	0.26	0.40	0.87	0.23	0.25	0.10	1.4
% Very Find Sand >.0625-.125 mm		3.7	7.3	7.3	3.3	6.1	3.8	0.15	5.3

Key:

mg/kg = Milligrams per kilogram

mm = Millimeter

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

"-Z3" denotes sample depth 12-24 inches

Table 3-2c Summary for Positive Analytical and Soil Quality Results for Phase II (July 2019) Soil Invertebrates Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.:	06 T09	06 T09	06 T09	06 T09	06 T09	06 T09	06 T09	06 T09	06 T09	07 T10 OU3-R7- T10W-S01- EW-Z1	07 T10 OU3-R7- T10W-S01- EW-Z2	07 T12 OU3-R7-T12E- S01-EW-Z1	07 T12 OU3-R7-T12E- S01-EW-Z2
Sample ID:	OU3-R6-T09E- S01-EW-Z1	OU3-R6-T09E- S01-EW-Z2	OU3-R6-T09E- S02-EW-Z1	OU3-R6-T09E- S02-EW-Z2	OU3-R6-T09E- S03-EW-Z1	OU3-R6-T09E- S03-EW-Z2	OU3-R6-T09E- S04-EW-Z1	OU3-R6-T09E- S04-EW-Z2	OU3-R6-T09E- S04-EW-Z2	T10W-S01- EW-Z1 7/24/2019	T10W-S01- EW-Z2 7/24/2019	OU3-R7-T12E- S01-EW-Z1 7/17/2019	OU3-R7-T12E- S01-EW-Z2 7/17/2019
Sample Date:	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/24/2019	7/17/2019	7/17/2019
Analytes													
PCB Aroclor (mg/kg)													
PCB-1248 (Aroclor 1248)	0.57	0.55	0.28	0.26	0.048 U	0.041 U	0.048 U	0.045 U	9.3	2.4	0.058	0.022 J	
PCB-1254 (Aroclor 1254)	0.54	0.57	0.37	0.35	0.048 U	0.041 U	0.048 U	0.045 U	9.3	3.9	0.055 J	0.02 J	
PCB-1260 (Aroclor 1260)	0.044 U	0.04 U	0.16	0.19	0.048 U	0.041 U	0.048 U	0.045 U	0.041 U	1.9	0.057 U	0.062 U	
PCB, Total ⁽¹⁾	1.11	1.12	0.81	0.8	0.048 U	0.041 U	0.048 U	0.045 U	18.6	8.2	0.113 J	0.042 J	
SVOCs + PAHs (mg/kg)													
2-Methylnaphthalene	0.013	0.018	0.011	0.016	0.0022 J	0.00096 J	0.0048 U	0.0045 U	0.017	0.0062	0.011	0.0037 J	
4-Chloroaniline	0.44 U	0.4 U	0.43 U	0.44 U	0.48 U	0.41 U	0.48 U	0.45 U	0.41 U	0.39 U	0.57 U	0.62 U	
Acenaphthene	0.028	0.034	0.018	0.034	0.0032 J	0.001 J	0.0048 U	0.0045 U	0.04	0.025	0.041	0.013	
Acenaphthylene	0.016	0.0099	0.016	0.051	0.012	0.0022 J	0.0018 J	0.0012 J	0.061	0.032	0.057	0.021	
Acetophenone	0.44 U	0.4 U	0.43 U	0.44 U	0.48 U	0.41 U	0.48 U	0.45 U	0.41 U	0.39 U	0.57 U	0.62 U	
Anthracene	0.067	0.063	0.047	0.12	0.016	0.0046	0.0048 U	0.0045 U	0.16	0.13	0.14	0.041	
Benzo(A)Anthracene	0.48	0.39	0.34	0.45	0.066	0.021	0.0045 J	0.0034 J	0.68	0.45	0.88	0.27	
Benzo(A)Pyrene	0.45	0.31	0.33	0.41	0.071	0.021	0.0038 J	0.0041 J	0.62	0.39	0.94	0.21	
Benzo(B)Fluoranthene	0.44	0.35	0.39	0.48	0.11	0.026	0.006	0.0061	0.65	0.45	1.4	0.32	
Benzo(G,H,I)Perylene	0.15	0.13	0.15	0.25	0.042	0.013	0.0027 J	0.0031 J	0.37	0.24	0.7	0.12	
Benzo(K)Fluoranthene	0.11	0.1	0.11	0.18	0.034	0.011	0.0019 J	0.002 J	0.31	0.19	0.43	0.12	
Bis(2-Ethylhexyl) Phthalate	1.6	0.1 J	0.79	0.076 J	0.25 U	0.15 J	0.25 U	0.23 U	8.9	13	0.2 J	0.32 U	
Carbazole	0.44 U	0.4 U	0.43 U	0.44 U	0.48 U	0.41 U	0.48 U	0.45 U	0.41 U	0.39 U	0.1 J	0.62 U	
Chrysene	0.52	0.43	0.39	0.51	0.055	0.022	0.0035 J	0.0027 J	0.75	0.47	1.1	0.22	
Dibenz(A,H)Anthracene	0.064	0.052	0.05	0.081	0.013	0.0047	0.0048 U	0.0045 U	0.13	0.077	0.15	0.043	
Dimethyl Phthalate	0.46	0.33	0.46	0.37	0.67	0.66	0.51	0.52	0.34	0.34	0.38	0.19 J	
Di-N-Butyl Phthalate	0.23 U	0.21 U	0.24	0.22 U	0.25 U	0.21 U	0.25 U	0.23 U	0.21 U	0.2 U	0.29 U	0.32 U	
Di-N-Octylphthalate	0.44 U	0.51	0.43 U	0.44 U	0.48 U	0.41 U	0.48 U	0.45 U	0.41 U	0.39 U	0.57 U	0.62 U	
Fluoranthene	0.64 J	0.4	0.39	0.66 J	0.11	0.031	0.0072	0.005	0.9 J	0.68 J	2	0.51	
Fluorene	0.022	0.025	0.016	0.034	0.0044 J	0.0014 J	0.0048 U	0.0045 U	0.041	0.033	0.046	0.014	
Hexachlorobenzene	0.23 U	0.21 U	0.22 U	0.22 U	0.25 U	0.21 U	0.25 U	0.23 U	0.21 U	0.2 U	0.29 U	0.32 U	
Indeno(1,2,3-C,D)Pyrene	0.12	0.096	0.12	0.22	0.039	0.011	0.0024 J	0.0024 J	0.31	0.21	0.66	0.13	
Naphthalene	0.013	0.016	0.011	0.016	0.0028 J	0.0013 J	0.0048 U	0.0045 U	0.018	0.007	0.014	0.0061 J	
Pentachlorophenol	0.0021 J	0.0082 U	0.0019 J	0.0089 U	0.0097 U	0.0083 U	0.0097 U	0.0091 U	0.0072 J	0.0079 U	0.011 U	0.007 J	
Phenanthrene	0.4	0.4	0.29	0.41	0.056	0.019	0.0039 J	0.0026 J	0.46	0.39	0.8	0.23	
Phenol	0.059 J	0.043 J	0.053 J	0.046 J	0.069 J	0.066 J	0.48 U	0.05 J	0.41 U	0.39 U	0.57 U	0.62 U	
Pyrene	0.8	0.66	0.57	0.75	0.12	0.035	0.0081	0.005	1.1	0.71	1.7	0.48	
PAH Mixtures ⁽¹⁾	4.333 J	3.4839	3.249	4.672 J	0.7566 J	0.22616 J	0.0458 J	0.0376 J	6.617 J	4.4902 J	11.069	2.7518 J	
PAH, Total HMW ⁽¹⁾	3.774 J	2.918	2.84	3.991 J	0.66	0.1957	0.0401 J	0.0338 J	5.82 J	3.867 J	9.96	2.423	
PAH, Total LMW ⁽¹⁾	0.559	0.5659	0.409	0.681	0.0966 J	0.03046 J	0.0057 J	0.0038 J	0.797	0.6232	1.109	0.3288 J	

Table 3-2c Summary for Positive Analytical and Soil Quality Results for Phase II (July 2019) Soil Invertebrates Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.: Sample ID: Sample Date: Analytes	06 T09 OU3-R6-T09E-S01-EW-Z1 7/24/2019	06 T09 OU3-R6-T09E-S01-EW-Z2 7/24/2019	06 T09 OU3-R6-T09E-S02-EW-Z1 7/24/2019	06 T09 OU3-R6-T09E-S02-EW-Z2 7/24/2019	06 T09 OU3-R6-T09E-S03-EW-Z1 7/24/2019	06 T09 OU3-R6-T09E-S03-EW-Z2 7/24/2019	06 T09 OU3-R6-T09E-S04-EW-Z1 7/24/2019	06 T09 OU3-R6-T09E-S04-EW-Z2 7/24/2019	07 T10 OU3-R7-T10W-S01-EW-Z1 7/24/2019	07 T10 OU3-R7-T10W-S01-EW-Z2 7/24/2019	07 T12 OU3-R7-T12E-S01-EW-Z1 7/17/2019	07 T12 OU3-R7-T12E-S01-EW-Z2 7/17/2019
Metals (mg/kg)												
Antimony	1.4	1.3	0.9 U	1.2	1 U	0.86 U	1.1 U	0.99 U	0.92 U	0.88 U	1.3 U	1.8
Arsenic	5.7	5.8	5.4	6.3	3.9	4.2	2.9	2.9	4.8	3.9	6.6	7.3
Barium	145	147	151	168	87	86.2	110	119	160	145	171	167
Beryllium	0.48 U	0.43 U	0.52	0.54	0.52 U	0.54	0.52 U	0.5 U	0.57	0.46	0.64 U	0.7 U
Cadmium	1.6	0.87	1.6	1.2	0.52 U	0.43 U	0.52 U	0.5 U	1.2	1.1	2.7	3.4
Chromium, Total	83.3	36.7	73.2	78	24.7	21	11.9	11.9	51.2	51.1	112	124
Cobalt	9.2	7.6	10	10	6.7	9.1	4.5	4.4	9.4	7.6	11.8	10.4
Copper	246	141	204	236	42.7	31.3	12.4	9.3	138	148	297	356
Lead	325	201	301	355	81	64.5	14.3	12.8	251	188	377	452
Manganese	517	433	618	562	292	386	249	190	517	401	924	951
Nickel	49.6	25.3	45.6	46.4	18.6	17.6	11.5	11.2	34.5	35.2	62	67.1
Selenium	0.68 J	0.44 J	0.67 J	0.57 J	0.57 J	0.3 J	0.69 J	0.56 J	0.42 J	0.32 J	1.2 J	1.3 J
Silver	1.5	1.1	1	1.4	0.52 U	0.43 U	0.52 U	0.5 U	0.81	0.93	2	3.4
Vanadium	15.1	12.1	17.3	17.2	16.2	18.2	13.3	13.3	17.9	14.4	20.9	21.3
Zinc	631	327	545	550	124	94.7	52.1	44	327	347	1110	1230
Mercury (mg/kg)												
Mercury	1.3	2.2	0.99	3	0.33	0.28	0.15	0.14	0.68	0.78	1.1 J-	1.1
Organic Carbon, Total (mg/kg)												
Total Organic Carbon	31000	21000	38000	37000	32000	9500	30000	22000	34000	23000	72000	71000
Grain Size (% Weight)												
% Gravel	--	--	0.59	--	--	--	--	--	--	--	--	--
%Clay & Colloids	--	--	10	--	--	--	--	--	--	--	--	--
% Coarse Sand >.5-1 mm	--	--	0.45	--	--	--	--	--	--	--	--	--
% Fine Sand >.125-.25 mm	--	--	7.6	--	--	--	--	--	--	--	--	--
% Medium Sand >.25-5 mm	--	--	0.99	--	--	--	--	--	--	--	--	--
% Silt 0.002-0.05 mm	--	--	71	--	--	--	--	--	--	--	--	--
% Very Coarse Sand >1-2 mm	--	--	0.50	--	--	--	--	--	--	--	--	--
% Very Find Sand >.0625-.125 mm	--	--	9.1	--	--	--	--	--	--	--	--	--

Key:

J = Estimated value

J- = Estimated value with low bias

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

Notes

Other

mg/kg = Milligrams per kilogram

mm = Millimeter

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-EW" denotes soil invertebrates

"-Z2" denotes sample depth 6-12 inches

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

(1) Sum = Total of detect values in the analyte group.

"-Z1" denotes sample depth 0-6 inches

LMW = Low molecular weight

Table 3-2c Summary for Positive Analytical and Soil Quality Results for Phase II (July 2019) Soil Invertebrates Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.:	07 T12	07 T12	07 T12	07 T12	07 T12
Sample ID:	OU3-R7-T12E-S02-EW-Z1	OU3-R7-T12E-S02-EW-Z2	OU3-R7-T12E-S03-EW-Z1	OU3-R7-T12E-FD	OU3-R7-T12E-S03-EW-Z2
Sample Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019
Analytes					
PCB Aroclor (mg/kg)					
PCB-1248 (Aroclor 1248)	0.066 UJ	0.056 U	0.056 U	0.057 UJ	0.06 U
PCB-1254 (Aroclor 1254)	0.018 J-	0.0092 J	2.7 J	0.71 J-	3.6
PCB-1260 (Aroclor 1260)	0.066 UJ	0.056 U	0.76 J	0.31 J-	0.85
PCB, Total ⁽¹⁾	0.018 J-	0.0092 J	3.46 J	1.02 J-	4.45
SVOCs + PAHs (mg/kg)					
2-Methylnaphthalene	0.0036 J	0.003 J	0.021	0.011	0.025
4-Chloroaniline	0.66 U	0.55 U	0.06 J	0.57 U	0.19 J
Acenaphthene	0.0093	0.0064	0.016 J	0.0091 J	0.02
Acenaphthylene	0.018	0.013	0.076	0.024	0.089
Acetophenone	0.66 U	0.55 U	0.093 J	0.57 U	0.08 J
Anthracene	0.033	0.029	0.079 J	0.029 J	0.097
Benzo(A)Anthracene	0.26	0.15	0.39	0.19	0.42
Benzo(A)Pyrene	0.23	0.11	0.42	0.23	0.39
Benzo(B)Fluoranthene	0.42	0.17	0.58	0.38	0.51
Benzo(G,H,I)Perylene	0.15	0.072	0.29	0.15	0.25
Benzo(K)Fluoranthene	0.14	0.068	0.22	0.12	0.2
Bis(2-Ethylhexyl) Phthalate	0.34 U	0.28 U	0.53 J	0.092 J	0.19 J
Carbazole	0.66 U	0.55 U	0.56 U	0.57 U	0.6 U
Chrysene	0.25	0.14	0.36	0.24	0.34
Dibenz(A,H)Anthracene	0.048	0.025	0.087	0.052	0.085
Dimethyl Phthalate	0.24 J	0.18 J	0.23 J	0.25 J	0.27 J
Di-N-Butyl Phthalate	0.34 U	0.28 U	0.29 U	0.29 U	0.31 U
Di-N-Octylphthalate	0.66 U	0.55 U	0.56 U	0.57 U	0.6 U
Fluoranthene	0.58	0.27	0.66	0.42	0.76
Fluorene	0.011	0.008	0.024	0.011	0.027
Hexachlorobenzene	0.34 U	0.28 U	0.29 U	0.29 U	0.087 J
Indeno(1,2,3-C,D)Pyrene	0.16	0.079	0.3	0.14	0.27
Naphthalene	0.0053 J	0.0042 J	0.021	0.012	0.024
Pentachlorophenol	0.013 U	0.011 U	0.011 U	0.012 U	0.012 U
Phenanthrene	0.23	0.14	0.33	0.17	0.32
Phenol	0.66 U	0.55 U	0.56 U	0.57 U	0.6 U
Pyrene	0.49	0.26	0.57	0.36	0.55
PAH Mixtures ⁽¹⁾	3.0382 J	1.5476 J	4.444 J	2.5481 J	4.377
PAH, Total HMW ⁽¹⁾	2.728	1.344	3.877	2.282	3.775
PAH, Total LMW ⁽¹⁾	0.3102 J	0.2036 J	0.567 J	0.2661 J	0.602

Table 3-2c Summary for Positive Analytical and Soil Quality Results for Phase II (July 2019) Soil Invertebrates Floodplain Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.:	07 T12	07 T12	07 T12	07 T12	07 T12
Sample ID:	OU3-R7-T12E-S02-EW-Z1	OU3-R7-T12E-S02-EW-Z2	OU3-R7-T12E-S03-EW-Z1	OU3-R7-T12E-FD	OU3-R7-T12E-S03-EW-Z2
Sample Date:	7/17/2019	7/17/2019	7/17/2019	7/17/2019	7/17/2019
Analytes					
Metals (mg/kg)					
Antimony	1.4 UJ	1.2 U	6.6 J	15.2 J	21.3
Arsenic	7.8 J	7.8	8.6	12.3	15.2
Barium	176 J	191	173	263	339
Beryllium	0.71 UJ	0.6 U	0.62 U	0.64 U	0.66 U
Cadmium	2.4 J	2.1	9.4 J	18.9 J	25.4
Chromium, Total	91.7 J	98.4	1620 J	3270 J	4530
Cobalt	10 J	9.9	19.5 J	33.8 J	43.7
Copper	267 J	242	619 J	1120 J	1650
Lead	372 J	446	839 J	1740 J	2420
Manganese	933 J	834	685	570	852
Nickel	52.2 J	56.4	461 J	816 J	1180
Selenium	1.3 J	0.67 J	1 J	1.2 J	1.1 J
Silver	1.9 J	1.6	5.4 J	10.6 J	14.5
Vanadium	20.6 J	20.5	256 J	488 J	652
Zinc	989 J	904	1760 J	3220 J	4340
Mercury (mg/kg)					
Mercury	0.87 J	1.5	2.95 J	2.7	4.8
Organic Carbon, Total (mg/kg)					
Total Organic Carbon	77000	43000	80000	79000	84000
Grain Size (% Weight)					
% Gravel	--	--	--	--	--
%Clay & Colloids	--	--	--	--	--
% Coarse Sand >.5-1 mm	--	--	--	--	--
% Fine Sand >.125-.25 mm	--	--	--	--	--
% Medium Sand >.25-5 mm	--	--	--	--	--
% Silt 0.002-0.05 mm	--	--	--	--	--
% Very Coarse Sand >1-2 mm	--	--	--	--	--
% Very Find Sand >.0625-.125 mm	--	--	--	--	--

Key:

J = Estimated value

J- = Estimated value with low bias

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

Notes

(1) Sum = Total of detect values in the analyte group.

Other

mg/kg = Milligrams per kilogram

mm = Millimeter

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-EW" denotes soil invertebrates

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 3-3 Summary for Positive Analytical Results for Phase II (July 2019) Industrial Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.: Sample ID: Sample Date: Analytes	08 ID06 OU3-R8- ID06E2-S01- Z2 7/15/2019	08 ID06 OU3-R8- ID06E2-S02- Z1 7/15/2019	08 ID06 OU3-R8- ID06E2-S03- Z1 7/15/2019	08 ID06 OU3-R8- ID06E2-S03- Z2 7/15/2019	08 ID06 OU3-R8- ID06E2-S05- Z1 7/15/2019	08 ID06 OU3-R8- ID06E2-S05- Z2 7/15/2019	08 ID06 OU3-R8- ID06E-FD 7/15/2019
PCB Aroclor (mg/kg)							
PCB-1248 (Aroclor 1248)	0.036 U	4.2 J+	1.7	3	0.048 UJ	0.048 U	0.048 U
PCB-1254 (Aroclor 1254)	0.021 J	0.047 U	1	2.3	0.048 UJ	0.048 U	0.048 U
PCB, Total ⁽¹⁾	0.021 J	4.2 J+	2.7	5.3	0.048 UJ	0.048 U	0.048 U
SVOCs + PAHs (mg/kg)							
2-Methylnaphthalene	0.23	11	0.14 J	0.087	0.73	1.095 J	0.79 J
Acenaphthene	0.59	15	0.36	0.15	1.3	1.5 J	1.2
Acenaphthylene	0.19 U	0.24 U	0.2 U	0.06	0.24 U	0.25 U	0.25 U
Acetophenone	0.36 U	0.47 U	0.39 U	0.38 U	0.2 J	0.48 U	0.48 U
Anthracene	0.89	21	0.8	0.4	2.2	2 J	1.7
Benzaldehyde	0.36 U	0.47 U	0.39 U	0.38 U	0.091 J	0.48 U	0.48 U
Benzo(A)Anthracene	2	55	2.4	1.7	8.6	4.9 J	3.4 J
Benzo(A)Pyrene	1.7	30	2.1	1.5	6.9	3.3 J	2.9
Benzo(B)Fluoranthene	2	29	2.3	1.8	7.5	3.25 J	2.9
Benzo(G,H,I)Perylene	0.71	8.9	0.8	0.65	2	1.03 J	0.86
Benzo(K)Fluoranthene	0.72	3.8	0.96	0.59	2	1.3 J	1.2
Biphenyl (Diphenyl)	0.078 J	1.2	0.2 U	0.19 U	0.12 J	0.17 J	0.13 J
Bis(2-Ethylhexyl) Phthalate	0.19 U	2.7	14	6.6	0.07 J	0.25 U	0.25 U
Carbazole	0.2 J	1.6	0.11 J	0.085 J	0.2 J	0.18 J	0.14 J
Chrysene	2.2	60	2.7	2	9.4	5.45 J	3.7 J
Dibenz(A,H)Anthracene	0.25	2.6	0.32	0.28	0.81	0.425 J	0.4
Dibenzofuran	0.25	1.3	0.066 J	0.06 J	0.17 J	0.2 J	0.16 J
Diethyl Phthalate	0.19 U	0.24 U	0.2 U	0.35	0.24 U	0.25 U	0.25 U
Dimethyl Phthalate	0.2	0.24 U	0.24	0.28	0.51	0.064 J	0.064 J
Di-N-Butyl Phthalate	0.19 U	0.24 U	1.3	0.077 J	0.24 U	0.25 U	0.25 U
Di-N-Octylphthalate	0.36 U	0.47 U	1.5	0.29 J	0.48 U	0.48 U	0.48 U
Fluoranthene	2.8 J	44 J	2.9 J	2.2 J	5.5 J	4.3 J	4 J
Fluorene	0.44	10	0.27	0.14	0.89	1.06 J	0.82
Indeno(1,2,3-C,D)Pyrene	0.65	7.8	0.75	0.59	1.7	0.865 J	0.75
Naphthalene	0.18 J	9.2	0.092 J	0.089	0.58	0.885 J	0.57 J
Phenanthrene	2.8	110	2.8	1.5	11	11.5 J	10
Phenol	0.36 U	0.47 U	0.39 U	0.38 U	0.066 J	0.48 U	0.48 U
Pyrene	4	100	5.2	2.5	14	10.85 J	9.7
PAH Mixtures ⁽¹⁾	22.16 J	517.3 J	24.892 J	16.236 J	75.11 J	53.71 J	44.89 J
PAH, Total HMW ⁽¹⁾	17.03 J	341.1 J	20.43 J	13.81 J	58.41 J	35.67 J	29.81 J
PAH, Total LMW ⁽¹⁾	5.13 J	176.2 J	4.462 J	2.426	16.7	18.04 J	15.08 J

Table 3-3 Summary for Positive Analytical Results for Phase II (July 2019) Industrial Soils, Eighteen Mile Creek OU3, New York

Reach No.:	08	08	08	08	08	08	08
Transect No.:	ID06	ID06	ID06	ID06	ID06	ID06	ID06
Sample ID:	OU3-R8-ID06E2-S01-Z2	OU3-R8-ID06E2-S02-Z1	OU3-R8-ID06E2-S03-Z1	OU3-R8-ID06E2-S03-Z2	OU3-R8-ID06E2-S05-Z1	OU3-R8-ID06E2-S05-Z2	OU3-R8-ID06E-FD
Sample Date:	7/15/2019	7/15/2019	7/15/2019	7/15/2019	7/15/2019	7/15/2019	7/15/2019
Analytes							
Metals (mg/kg)							
Antimony	5.8	24.2	9.1	6.2	24.8	25.25 J	24.3
Arsenic	4.4	7.4	8	9.1	2.4	2.6 J	2.6
Barium	144	107	96.4	127	32.8	37.05 J	34.2
Beryllium	0.41 U	0.53 U	0.51	0.46	0.51 U	0.52 U	0.52 U
Cadmium	0.91	3.2 J	1.4	1.3	2.5	2.85 J	2.9
Chromium, Total	71.6	233	47.1	49.6	615	429.5 J	435
Cobalt	13.9	17.4	10.5	10.6	10.3	9.1 J	8.7
Copper	5810	18800	1700	1440	36300	34650 J	33100
Lead	341	1270	603	617	1140	1215 J	1190
Manganese	1240	3310	816	805	2940	2430 J	2250
Nickel	237	971	277	224	883	704 J	704
Selenium	0.23 J	0.58 J	0.56 J	0.49 J	2.6 U	2.6 U	2.6 U
Silver	1.1	4.1	2	2.6	4.8	5.3 J	5.3
Vanadium	17	48	14.7	15	75.1	73.2 J	71.9
Zinc	379	885	646	633	629	502.5 J	500
Mercury (mg/kg)							
Mercury	0.4	0.66 J+	0.94	2.2	0.18	0.285 J	0.3

Key:

- J = Estimated value
- J+ = Estimated value with high bias
- U = Not detected (quantitation limit shown)
- UJ = Not detected/estimated detection limit

Notes

(1) Sum = Total of detect values in the analyte group.

Other

- mg/kg = Milligrams per kilogram
- = Analyte not analyzed for
- "-FD" denotes field duplicate sample
- "-Z1" denotes sample depth 0-6 inches
- "-Z2" denotes sample depth 6-12 inches
- SVOC = Semivolatile Organic Compounds
- PAH = Polycyclic aromatic hydrocarbon
- PCB = Polychlorinated biphenyl
- HMW = High molecular weight
- LMW = Low molecular weight

Table 3-4 Summary for Positive Analytical Results for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek OU3, New York

Sample ID:	OU2-MW01-OCT19	OU2-MW02-OCT19	OU2-MW04-OCT19	OU2-MW05-OCT19	OU2-MW06-OCT19	OU2-MW08-OCT19	OU2-MW09-OCT19	OU2-MW11-OCT19	OU2-MW12-OCT19	OU2-MW13-OCT19
Sample Date ⁽²⁾ :	10/3/2019	10/3/2019	10/3/2019	10/1/2019	10/3/2019	10/2/2019	10/4/2019	10/1/2019	10/4/2019	10/4/2019
Analytes										
Metals (ug/L)⁽¹⁾										
Arsenic	1 U	1 U	1 U	1.8	1 U	1 U	1 U	1 U	1 U	5.1
Manganese	5.3	1 U	17	850	4.3	34	30	1 U	540	1600
VOCs (ug/L)										
Acetone	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.73 J-	0.56 J-
Chloroform	0.5 U	2.9	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethylene	0.5 U	0.5 U	0.5 U	8.4	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Ethyl Ketone (2-Butanone)	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethylene (PCE)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethylene (TCE)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Dissolved Organic Carbon (mg/L)										
Dissolved Organic Carbon	2.5	2.6	5.1	6.6	3.3	4.4	--	3.9	5.4	--
Total Organic Carbon (mg/L)										
Total Organic Carbon	2.1	1.8	4.1	5.4	2.5	2.5	--	1.8	3.7	--
Dissolved Gases (ug/L)										
Ethane	2 U	2 U	2 U	2 U	2 U	2 U	--	2 U	2 U	--
Methane	2 U	2 U	4.94	15.5	2 U	28.6	--	2 U	186	--
Carbon Dioxide (mg/L)										
Carbon Dioxide	100	45	33	72	100	130	59	26	62	15
Ferrous Iron (mg/L)										
Iron, Ion (Fe2+)	0.1 UJ	0.1 UJ	0.1 UJ	0.75 J	0.14 UJ	0.33 J	--	0.1 UJ	0.1 UJ	--
Volatile Fatty Acids (mg/L)										
3-Methylbutanoic Acid	0.1 U	0.1 U	0.1 U	1 U	1 U	0.1 U	1 U	0.1 U	0.1 U	0.1 U
Acetic Acid	0.1 U	0.1 U	0.19 U	1 U	4.9	0.34 U	4	0.44 U	0.43 U	0.22 U
Butanoic Acid	0.1 U	0.1 U	0.1 U	1 U	1 U	0.1 U	0.13	0.1 U	0.012 J	0.1 U
Formic Acid	0.12 J	0.091 J	0.5 UJ	5 UJ	5 UJ	0.14 J	1.9	0.5 UJ	0.16 U	0.5 U
Hexanoic Acid (DOT)	0.2 UJ	0.2 UJ	0.2 UJ	2 UJ	2 UJ	0.2 UJ	0.1	0.2 UJ	0.2 U	0.2 U
Lactic Acid	0.2 U	0.2 U	0.053 J	0.58	1	0.08 J	2 U	0.1 J	0.074 J	0.2 U
Propionic Acid	0.1 U	0.1 U	0.1 U	1 U	1 U	0.1 U	1.8	0.1 U	0.13 U	0.11 U
Anions (Chloride & Sulfate) (mg/L)										
Chloride (As Cl)	290	180	49	270	470	51	1300	130	30	45
Sulfate (As SO4)	240	140	72	87	340	90	120	86	56	77
Nitrate and Nitrite (mg/L)										
Nitrate [As N]	0.97	0.39	0.19	0.05 U	3.7	0.05 U	5.8	0.91	0.3	0.74
Nitrite [As N]	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Sulfide (mg/L)										
Sulfide	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.022	0.01 U

Table 3-4 Summary for Positive Analytical Results for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek OU3, New York

Sample ID:	OU2-MW01-OCT19	OU2-MW02-OCT19	OU2-MW04-OCT19	OU2-MW05-OCT19	OU2-MW06-OCT19	OU2-MW08-OCT19	OU2-MW09-OCT19	OU2-MW11-OCT19	OU2-MW12-OCT19	OU2-MW13-OCT19
Sample Date ⁽²⁾ :	10/3/2019	10/3/2019	10/3/2019	10/1/2019	10/3/2019	10/2/2019	10/4/2019	10/1/2019	10/4/2019	10/4/2019
Analytes										
Alkalinity (mg/L)										
Alkalinity, Total	450	380	300	440	420	220	500	260	340	150
Dehalococcoides (DHC) (ng/L) (%)										
DNA (Extractable)	--	--	--	1208 J	--	--	--	--	--	--
Percent DHC in microbial population	--	--	--	ND	--	--	--	--	--	--
Field Parameters										
pH	6.82	6.99	7.14	6.87	6.84	6.36	DU	7.16	DU	DU
Temperature (°C)	11.6	12.23	12.18	16.63	12.68	15.27	DU	20.45	DU	DU
Oxidation Reduction Potential, ORP (mV)	97.5	89.6	13.7	-10.5	233.4	38.8	DU	2.4	DU	DU
Dissolved Oxygen, DO (mg/L)	0.78	1.69	1.94	0.82	0.14	0	DU	1.95	DU	DU
Conductivity (uS/cm)	2150	1488.4	1080	2181.9	3360	387.97	DU	1119.2	DU	DU
Turbdidty (NTU)	1.33	131.6	2.79	1.25	7.13	0	DU	0	DU	DU

Key:	Other	Notes
J = Estimated value	µg/L = Micrograms per liter	(1) Samples were filtered in field for analyte
J+ = Estimated value with high bias	ng/L = Nanograms per liter	(2) See Table 2-1 series for parameters separate sample dates
J- = Estimated value with low bias	mg/L = Milligrams per liter	
U = Not detected (quantitation limit shown)	mV = Millivolts	
UJ = Not detected/estimated detection limit	uS/cm = Microsiemens per centimeter	
UJ- = Not detected/estimated detection limit with low bias	NTU = Nephelometric turbidity	
DU = Data Unavailable	°C = Degree celsius	
ND= Not Detected	-- = Analyte not analyzed for	
	"-FD" denotes field duplicate sample	
	VOC =Volatile Organic Compounds	

Table 3-4 Summary for Positive Analytical Results for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek OU3, New York

Sample ID:	OU2-MW14-SEP19	OU2-MW15-SEP19/OCT19	OU2-MW16-OCT19	OU2-MW-OCT19-FD	OU2-MW18-OCT19	OU2-MW19-OCT19	OU2-MW20-SEP19/OCT19	OU2-MW21-OCT19	OU2-MW22-OCT19	OU2-MW23-SEP19/OCT19
Sample Date ⁽²⁾ :	9/30/2019	9/30/2019 10/1/2019	10/2/2019	10/2/2019	10/3/2019	10/4/2019	9/30/2019 10/1/2019	10/2/2019	10/2/2019	9/30/2019 10/4/2019
Analytes										
Metals (ug/L)⁽¹⁾										
Arsenic	1 U	1 U	1 U	1 U	1 U	5.8	3	1.4	1 U	17
Manganese	1 U	4.8	1 U	1 U	140	1 U	980	120	250	540
VOCs (ug/L)										
Acetone	5 U	5 U	5 U	5 U	5 U	970	5 U	5 U	5 U	5 U
Carbon Disulfide	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.9 J-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-
Chloroform	1.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethylene	9.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	14	0.5 U	0.5 U	2.1
Methyl Ethyl Ketone (2-Butanone)	5 U	5 U	5 U	5 U	5 U	26	5 U	5 U	5 U	5 U
Tetrachloroethylene (PCE)	2.2	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethylene (TCE)	11	0.57	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	1 U	1 U	1 U	1 U	1 U	1 U	5.2	1 U	1 U	1.4
Dissolved Organic Carbon (mg/L)										
Dissolved Organic Carbon	1.5	2.3	1.7	2	4.1	31	4.6	4.3	5.9	5.1
Total Organic Carbon (mg/L)										
Total Organic Carbon	1.6	1.5	1.5	1.4	3.8	31	2.4	4.2	5.3	4.8
Dissolved Gases (ug/L)										
Ethane	2 U	2 U	2 U	2 U	2 U	2 U	2 U	2 UJ-	398 J-	2 U
Methane	2 U	2 U	2 U	2 U	19.1	8.74	101	501	13500 J+	3260
Carbon Dioxide (mg/L)										
Carbon Dioxide	47	62	56	60	20	5 U	44	11	160	22
Ferrous Iron (mg/L)										
Iron, Ion (Fe2+)	0.1 UJ	0.1 UJ	0.1 UJ	0.1 UJ	0.37 J	0.6 J	0.47 J	0.95 J	1.5 J	1.7 J
Volatile Fatty Acids (mg/L)										
3-Methylbutanoic Acid	0.1 U	1 UJ	1 U	1 U	1 U	0.11	0.1 UJ	0.1 U	1 U	0.1 UJ
Acetic Acid	0.39 U	1 UJ	6.1 J	1 UJ	1 U	24	0.1 UJ	0.61 U	6.3	0.2 UJ
Butanoic Acid	0.1 U	1 UJ	1 U	1 U	1 U	0.44	0.1 UJ	0.1 U	1 U	0.1 UJ
Formic Acid	0.099 J	1.4 J	5 UJ	5 UJ	5 UJ	4.9	0.088 J	0.088 J	5 UJ	0.12 J
Hexanoic Acid (DOT)	0.2 UJ	2 UJ	2 UJ	2 UJ	2 UJ	0.15	0.2 UJ	0.2 UJ	2 UJ	0.2 UJ
Lactic Acid	0.074 J	0.45 J	1.1 J	2 UJ	2 U	2 U	0.2 UJ	0.12 J	1.3	0.2 UJ
Propionic Acid	0.18	1 UJ	1 U	1 U	1 U	1.8	0.0083 J	0.0094 J	0.062	0.0056 J
Anions (Chloride & Sulfate) (mg/L)										
Chloride (As Cl)	560	1100	1500	1400	1700	310	250	150	750	88
Sulfate (As SO4)	95	120	150	150	1200	120	63	46	1 U	61
Nitrate and Nitrite (mg/L)										
Nitrate [As N]	2.9	3.2	3.1	3.1	0.05 U	0.26	0.05 U	0.05 U	0.05 U	0.069
Nitrite [As N]	0.025 U	0.025 U	0.05 U	0.05 U	0.05 U	0.39	0.025 U	0.05 U	0.05 U	0.05 U
Sulfide (mg/L)										
Sulfide	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.01 U	0.035	0.01 U	0.01 U

Table 3-4 Summary for Positive Analytical Results for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek OU3, New York

Sample ID:	OU2-MW14-SEP19	OU2-MW15-SEP19/OCT19	OU2-MW16-OCT19	OU2-MW-OCT19-FD	OU2-MW18-OCT19	OU2-MW19-OCT19	OU2-MW20-SEP19/OCT19	OU2-MW21-OCT19	OU2-MW22-OCT19	OU2-MW23-SEP19/OCT19
Sample Date ⁽²⁾ :	9/30/2019	9/30/2019 10/1/2019	10/2/2019	10/2/2019	10/3/2019	10/4/2019	9/30/2019 10/1/2019	10/2/2019	10/2/2019	9/30/2019 10/4/2019
Analytes										
Alkalinity (mg/L)										
Alkalinity, Total	380	460	400	390	220	1200	320	290	450	240
Dehalococcoides (DHC) (ng/L) (%)										
DNA (Extractable)	536 J	423 J	--	--	--	--	3000 U	--	--	3323
Percent DHC in microbial population	ND	ND	--	--	--	--	ND	--	--	ND
Field Parameters										
pH	7.03	6.99	6.89	--	7.08	DU	6.84	7.5	6.55	7.26
Temperature (°C)	15.41	13.3	13.11	--	14.01	DU	16.3	17.48	15.7	19.18
Oxidation Reduction Potential, ORP (mV)	166.3	91.5	284.8	--	-112.3	DU	-66.3	-165.9	-48.5	-152.6
Dissolved Oxygen, DO (mg/L)	0.71	2.59	2.36	--	1.37	DU	0.16	0.19	0.16	0.16
Conductivity (uS/cm)	2476.8	4139.5	3231.2	--	7146.1	DU	1474	1057.5	2475.9	880.97
Turbdidty (NTU)	0.78	2.5	3.04	--	0	DU	17.97	5.93	43.96	20.9

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

DU = Data Unavailable

ND= Not Detected

Other

µg/L = Micrograms per liter

ng/L = Nanograms per liter

mg/L = Milligrams per liter

mV = Millivolts

uS/cm = Microsiemens per centimeter

NTU = Nephelometric turbidity

°C = Degree celsius

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

VOC =Volatile Organic Compounds

Notes

(1) Samples were filtered in field for analyte

(2) See Table 2-1 series for parameters separate sample dates

Table 3-4 Summary for Positive Analytical Results for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek OU3, New York

Sample ID:	OU2-SW04-OCT19	OU2-SW05-OCT19	OU2-SW-OCT19-FD	OU2-SW06-OCT19	OU2-SW07-OCT19	OU2-SW08-OCT19
Sample Date ⁽²⁾ :	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019
Analytes						
Metals (ug/L) ⁽¹⁾						
Arsenic	--	--	--	--	--	--
Manganese	--	--	--	--	--	--
VOCs (ug/L)						
Acetone	5 U	5 U	5 U	5 U	5 U	5 U
Carbon Disulfide	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-	0.5 UJ-
Chloroform	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Cis-1,2-Dichloroethylene	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Methyl Ethyl Ketone (2-Butanone)	5 U	5 U	5 U	5 U	5 U	5 U
Tetrachloroethylene (PCE)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Trichloroethylene (TCE)	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Vinyl Chloride	1 U	1 U	1 U	1 U	1 U	1 U
Dissolved Organic Carbon (mg/L)						
Dissolved Organic Carbon	--	--	--	--	--	--
Total Organic Carbon (mg/L)						
Total Organic Carbon	--	--	--	--	--	--
Dissolved Gases (ug/L)						
Ethane	--	--	--	--	--	--
Methane	--	--	--	--	--	--
Carbon Dioxide (mg/L)						
Carbon Dioxide	--	--	--	--	--	--
Ferrous Iron (mg/L)						
Iron, Ion (Fe2+)	--	--	--	--	--	--
Volatile Fatty Acids (mg/L)						
3-Methylbutanoic Acid	--	--	--	--	--	--
Acetic Acid	--	--	--	--	--	--
Butanoic Acid	--	--	--	--	--	--
Formic Acid	--	--	--	--	--	--
Hexanoic Acid (DOT)	--	--	--	--	--	--
Lactic Acid	--	--	--	--	--	--
Propionic Acid	--	--	--	--	--	--
Anions (Chloride & Sulfate) (mg/L)						
Chloride (As Cl)	--	--	--	--	--	--
Sulfate (As SO4)	--	--	--	--	--	--
Nitrate and Nitrite (mg/L)						
Nitrate [As N]	--	--	--	--	--	--
Nitrite [As N]	--	--	--	--	--	--
Sulfide (mg/L)						
Sulfide	--	--	--	--	--	--

Table 3-4 Summary for Positive Analytical Results for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek OU3, New York

Sample ID:	OU2-SW04-OCT19	OU2-SW05-OCT19	OU2-SW-OCT19-FD	OU2-SW06-OCT19	OU2-SW07-OCT19	OU2-SW08-OCT19
Sample Date ⁽²⁾ :	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019	10/4/2019
Analytes						
Alkalinity (mg/L)						
Alkalinity, Total	--	--	--	--	--	--
Dehalococcoides (DHC) (ng/L) (%)						
DNA (Extractable)	--	--	--	--	--	--
Percent DHC in microbial population	--	--	--	--	--	--
Field Parameters						
pH	DU	DU	DU	DU	DU	DU
Temperature (°C)	DU	DU	DU	DU	DU	DU
Oxidation Reduction Potential, ORP (mV)	DU	DU	DU	DU	DU	DU
Dissolved Oxygen, DO (mg/L)	DU	DU	DU	DU	DU	DU
Conductivity (uS/cm)	DU	DU	DU	DU	DU	DU
Turbdidty (NTU)	DU	DU	DU	DU	DU	DU

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

DU = Data Unavailable

ND= Not Detected

Other

µg/L = Micrograms per liter

ng/L = Nanograms per liter

mg/L = Milligrams per liter

mV = Millivolts

uS/cm = Microsiemens per centimeter

NTU = Nephelometric turbidity

°C = Degree celsius

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

VOC =Volatile Organic Compounds

Notes

(1) Samples were filtered in field for analyte

(2) See Table 2-1 series for parameters separate sample dates

Table 3-5a Summary for Positive Analytical Results for Phase II (July 2019) Sediment and Reference Area Sample, Eighteen Mile Creek OU3, New York

Analytes	Reach No.:	01	01	01	03	04	04	04	06	06	07	Background
	Zone No.:	Zone 1	Zone 1	Zone 1	Zone 2	Zone 2	Zone 2	Zone 2	Zone 3	Zone 3	Zone 3	BG
	Sample ID:	OU3-P1-SD01	OU3-P1-SD02	OU3-P1-SD03	OU3-P2-SD01	OU3-P2-SD02	OU3-P2-SD-	OU3-P2-SD03	OU3-P3-SD01	OU3-P3-SD02	OU3-P3-SD03	OU3-BG-
	Sample Date:	JUL19	JUL19	JUL19	JUL19	JUL19	FD-JUL19	JUL19	JUL19	JUL19	JUL19	SD02-JUL19
		7/18/2019	7/18/2019	7/18/2019	7/22/2019	7/22/2019	7/22/2019	7/23/2019	7/23/2019	7/22/2019	7/23/2019	7/19/2019
PCB Aroclor (mg/kg)												
PCB-1242 (Aroclor 1242)		0.11 U	0.11 UJ	0.076 U	0.12 UJ	0.675 J	0.78	0.12 UJ	0.12 UJ	3.1 J	0.12 UJ	0.071 U
PCB-1248 (Aroclor 1248)		0.11 U	0.11 UJ	0.076 U	0.028 J	0.092 U	0.1 U	0.04 J	0.043 J	0.066 U	0.17 J	0.071 U
PCB-1254 (Aroclor 1254)		0.11 U	0.11 UJ	0.076 U	0.12 UJ	0.092 U	0.1 U	0.023 J	0.031 J	1.3	0.092 J	0.071 U
PCB, Total ⁽¹⁾		0.11 U	0.11 UJ	0.076 U	0.028 J	0.675 J	0.78	0.063 J	0.074 J	4.4 J	0.262 J	0.071 U
SVOCs + PAHs (mg/kg)												
4-Methylphenol (P-Cresol)		1.1 U	1.1 U	0.76 U	1.2 UJ	0.92 U	1 U	1.2 UJ	1.2 UJ	0.66 U	0.16 J	0.71 U
Acenaphthene		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.00225 J	0.0025 J	0.012 UJ	0.012 UJ	0.0036 J	0.0067 J	0.0071 U
Acenaphthylene		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.022	0.022	0.012 UJ	0.012 UJ	0.0023 J	0.0062 J	0.0071 U
Anthracene		0.011 U	0.011 U	0.0031 J	0.012 UJ	0.016	0.016	0.012 UJ	0.012 UJ	0.013	0.019 J	0.0071 U
Benzo(A)Anthracene		0.011 U	0.011 U	0.0064 J	0.0051 J	0.191 J	0.36	0.0055 J	0.0067 J	0.08	0.13 J	0.0071 U
Benzo(A)Pyrene		0.011 U	0.011 U	0.0069 J	0.0048 J	0.1365 J	0.25	0.0072 J	0.0081 J	0.074	0.095 J	0.0071 U
Benzo(B)Fluoranthene		0.003 J	0.011 U	0.0092	0.012 UJ	0.1865 J	0.35	0.011 J	0.012 J	0.088	0.15 J	0.0071 U
Benzo(G,H,I)Perylene		0.011 U	0.011 U	0.0052 J	0.0036 J	0.0775 J	0.14	0.0065 J	0.0058 J	0.042	0.063 J	0.0071 U
Benzo(K)Fluoranthene		0.011 U	0.011 U	0.0058 J	0.0027 J	0.0742 J	0.14	0.0046 J	0.0046 J	0.033	0.053 J	0.0071 U
Bis(2-Ethylhexyl) Phthalate		0.56 U	0.55 U	0.39 U	0.61 UJ	0.195 J	0.23 J	0.62 UJ	0.6 UJ	1.1	0.62 UJ	0.37 U
Chrysene		0.011 U	0.011 U	0.0055 J	0.0067 J	0.1875 J	0.34	0.0075 J	0.0088 J	0.083	0.14 J	0.0071 U
Dibenz(A,H)Anthracene		0.011 U	0.011 U	0.0035 J	0.012 UJ	0.02405 J	0.044	0.012 UJ	0.012 UJ	0.014	0.018 J	0.0071 U
Dimethyl Phthalate		0.5 J	0.35 J	0.56	0.29 J	1.02 J	0.94	1.2 J	0.66 J	0.55	0.83 J	0.46
Di-N-Butyl Phthalate		0.56 U	0.55 U	0.39 U	0.61 UJ	0.47 U	0.53 U	0.62 UJ	0.6 UJ	0.13 J	0.62 UJ	0.37 U
Fluoranthene		0.0049 J	0.011 U	0.0099	0.0098 J	0.1675 J	0.31	0.012 J	0.015 J	0.099	0.23 J	0.0071 U
Fluorene		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.00345 J	0.0039 J	0.012 UJ	0.012 UJ	0.0036 J	0.0078 J	0.0071 U
Indeno(1,2,3-C,D)Pyrene		0.011 U	0.011 U	0.0052 J	0.0029 J	0.0694 J	0.13	0.005 J	0.0048 J	0.035	0.054 J	0.0071 U
Naphthalene		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.0041 J	0.01 U	0.012 UJ	0.012 UJ	0.0021 J	0.0028 J	0.0071 U
Phenanthrene		0.0033 J	0.011 U	0.0081	0.0044 J	0.026 J	0.034	0.0046 J	0.012 UJ	0.045	0.09 J	0.0071 U
Phenol		1.1 U	1.1 U	0.76 U	1.2 UJ	0.12 J	1 U	0.13 J	1.2 UJ	0.072 J	0.13 J	0.71 U
Pyrene		0.0041 J	0.011 U	0.0095	0.013 J	0.1975 J	0.36	0.016 J	0.015 J	0.13	0.62 UJ	0.0071 U
PAH Mixtures ⁽¹⁾		0.0153 J	0.011 U	0.0783 J	0.053 J	1.3644 J	2.5024 J	0.0799 J	0.0808 J	0.7476 J	1.0655 J	0.0071 U
PAH, Total HMW ⁽¹⁾		0.012 J	0.011 U	0.0671 J	0.0486 J	1.31165 J	2.424	0.0753 J	0.0808 J	0.678	0.933 J	0.0071 U
PAH, Total LMW ⁽¹⁾		0.0033 J	0.011 U	0.0112 J	0.0044 J	0.05275 J	0.0784 J	0.0046 J	0.012 UJ	0.0696 J	0.1325 J	0.0071 U
Pesticides (mg/kg)												
Beta Endosulfan (Endosulfan II)		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.0064 J+	0.0064 J+	0.012 UJ	0.012 UJ	0.0066 U	0.012 UJ	0.0071 U
Delta BHC (Delta Hexachlorocyclohexane)		0.0056 U	0.0055 U	0.0039 U	0.0061 UJ	0.027 J	0.016 J+	0.0062 UJ	0.006 UJ	0.0034 U	0.0062 UJ	0.0037 U
Dieldrin		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.013 J	0.013 J+	0.012 UJ	0.012 UJ	0.0066 U	0.012 UJ	0.0071 U
Methoxychlor		0.00072 J	0.00084 J	0.00048 J	0.061 UJ	0.048 U	0.053 U	0.062 UJ	0.06 UJ	0.034 U	0.062 UJ	0.037 U
P,P'-DDD (4,4'-DDD)		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.011 J+	0.01 UJ	0.012 UJ	0.012 UJ	0.0066 U	0.012 UJ	0.0071 U
P,P'-DDE (4,4'-DDE)		0.00025 J	0.011 U	0.0076 U	0.012 UJ	0.0092 UJ	0.01 UJ	0.012 UJ	0.0013 J	0.0066 U	0.012 UJ	0.0071 U
P,P'-DDT (4,4'-DDT)		0.011 U	0.011 U	0.0076 U	0.012 UJ	0.0092 U	0.01 U	0.012 UJ	0.00097 J	0.0066 U	0.012 UJ	0.0071 U

Table 3-5a Summary for Positive Analytical Results for Phase II (July 2019) Sediment and Reference Area Sample, Eighteen Mile Creek OU3, New York

Analytes	Reach No.:	01	01	01	03	04	04	04	06	06	07	Background
	Zone No.:	Zone 1	Zone 1	Zone 1	Zone 2	Zone 2	Zone 2	Zone 2	Zone 3	Zone 3	Zone 3	BG
	Sample ID:	OU3-P1-SD01	OU3-P1-SD02	OU3-P1-SD03	OU3-P2-SD01	OU3-P2-SD02	OU3-P2-SD-	OU3-P2-SD03	OU3-P3-SD01	OU3-P3-SD02	OU3-P3-SD03	OU3-BG-
	Sample Date:	JUL19	JUL19	JUL19	JUL19	JUL19	FD-JUL19	JUL19	JUL19	JUL19	JUL19	SD02-JUL19
		7/18/2019	7/18/2019	7/18/2019	7/22/2019	7/22/2019	7/22/2019	7/23/2019	7/23/2019	7/22/2019	7/23/2019	7/19/2019
Metals (mg/kg)												
Antimony		2.4 UJ	2.2 UJ	1.6 UJ	0.8 UJ	4.7 J	5 J	0.75 UJ	0.8 UJ	1.4 UJ	0.78 UJ	1.6 UJ
Arsenic		5.2 J	5.5 J	4.1 J	5.4 J	11.9 J	12.4 J	4 J	4.3 J	5.3 J	6.3 J	2.9 J
Barium		131 J	127 J	120 J	136 J	270 J	267 J	113 J	120 J	153 J	145 J	49.5 J
Beryllium		1.2 UJ	1.1 UJ	0.81 UJ	0.56 J	0.99 UJ	1.1 UJ	0.45 J	0.53 J	0.7 UJ	0.58 J	0.79 UJ
Cadmium		3.9 J	1.3 J	0.81 UJ	2.2 J	18.4 J	17.6 J	1.8 J	1.1 J	1.4 J	2 J	0.79 UJ
Chromium, Total		56.8 J	63.8 J	24.9 J	117 J	1290 J	1130 J	78.7 J	46.4 J	74.2 J	78.4 J	7.6 J
Cobalt		11 J	11.2 J	11.4 J	10.8 J	16 J	18 J	8.8 J	10.2 J	10.4 J	10.8 J	5.3 J
Copper		111 J	125 J	41.2 J	245 J	2025 J	1950 J	164 J	143 J	168 J	321 J	11.1 J
Lead		129 J	137 J	46.4 J	356 J	4555 J	4390 J	237 J	167 J	216 J	340 J	10.9 J
Manganese		446 J	366 J	452 J	602 J	318 J	337 J	500 J	763 J	834 J	804 J	211 J
Nickel		43.1 J	48.6 J	28.9 J	53.1 J	303 J	341 J	39.9 J	38.4 J	43.2 J	49.6 J	10.4 J
Selenium		0.69 J	0.87 J	0.47 J	0.83 J	1.75 J	1.7 J	0.71 J	0.73 J	0.74 J	1.1 J	0.48 J
Silver		1.2 UJ	1.1 UJ	0.81 UJ	0.99 J	5.05 J	4.8 J	0.73 J	0.63 J	0.93 J	1.5 J	0.79 UJ
Vanadium		16.5 J	14.9 J	18.7 J	16.6 J	62.2 J	61.5 J	14.1 J	15.1 J	18 J	16.8 J	8.5 J
Zinc		527 J	494 J	210 J	1140 J	15900 J	17100 J	672 J	453 J	517 J	727 J	82.1 J
Mercury (mg/kg)												
Mercury		1.3 J	1.7 J	0.2 UJ	0.76 J	2.6 J	2.6 J	0.62 J	0.25 J	1.1 J	1 J	0.2 UJ
Organic Carbon, Total (mg/kg)												
Total Organic Carbon		41000	46000	42000	40000	92000	100000	54000	50000	55000	83000	27000
Grain Size (% Weight)												
% Gravel		8.2	1.3	1.2	3	2.5	3.6	2.3	50	1.8	2	3.5
% Clay & Colloids		7.3	13	32	13	19	19	10	7.6	13	12	5.3
% Coarse Sand >.5-1 mm		1.2	1.1	0.56	0.8	0.11	0.75	1.4	1.8	1.4	2.4	3.5
% Fine Sand >.125-.25 mm		10	4	5.3	3.7	3.5	2.7	11	1.4	6.3	6.5J	22
% Medium Sand >.25-5 mm		2.4	1.5	1.6	0.96	0.43	1.0	3.3	1.8	3.1	3.2	7
% Silt 0.002-0.05 mm		61	72	56	74	70	70	61	33	67	63	39
% Very Find Sand >.0625-.125 mm		8.8	6.4	2.7	3.1	3.8	2.2	8.5	1.6	6.1	9.2J	17

Table 3-5a Summary for Positive Analytical Results for Phase II (July 2019) Sediment and Reference Area Sample, Eighteen Mile Creek OU3, New York

Analytes	Reach No.:	01	01	01	03	04	04	04	06	06	07	Background
	Zone No.:	Zone 1	Zone 1	Zone 1	Zone 2	Zone 2	Zone 2	Zone 2	Zone 3	Zone 3	Zone 3	BG
	Sample ID:	OU3-P1-SD01	OU3-P1-SD02	OU3-P1-SD03	OU3-P2-SD01	OU3-P2-SD02	OU3-P2-SD-	OU3-P2-SD03	OU3-P3-SD01	OU3-P3-SD02	OU3-P3-SD03	OU3-BG-
	Sample Date:	JUL19	JUL19	JUL19	JUL19	JUL19	FD-JUL19	JUL19	JUL19	JUL19	JUL19	SD02-JUL19
		7/18/2019	7/18/2019	7/18/2019	7/22/2019	7/22/2019	7/22/2019	7/23/2019	7/23/2019	7/22/2019	7/23/2019	7/19/2019
Acid Volatile Sulfide / Simultaneously Extracted Metals (AVS / SEM) (µmol/g)												
Acid Volatile Sulfide		26.9	16.8	43.7	74.9	300	251	70.1	42.5	2.1	15.9	83.3
Antimony		0.013 U	0.0078 UJ	0.0073 U	0.012 UJ	0.2 U	0.23 U	0.0083 J	0.013 U	0.007 U	0.015 U	0.0092 U
Arsenic		0.033 U	0.02 U	0.018 U	0.03 U	0.51 U	0.59 U	0.036 U	0.033 U	0.0093 J	0.037 U	0.023 U
Cadmium		0.023	0.0021	0.012	0.02	0.085	0.096	0.015	0.0081	0.0083	0.013	0.0067
Chromium		0.42	0.017	0.16	1.5	14.5	12.5	0.89	0.4	0.46	0.55	0.018
Copper		0.21	0.0068	0.15	0.57	0.064 J	0.097 J	0.29	0.98	1.3	1.2	0.015
Lead		1.1	0.03	0.31	1.5	13.6	15.5	1.2	0.8	1	1.3	0.05
Nickel		0.38	0.035	0.16	0.37	2.2	2.1	0.27	0.19	0.18	0.24	0.024
Silver		0.012 U	0.0073 UJ	0.0068 U	0.011 UJ	0.19 U	0.22 U	0.013 U	0.012 U	0.0035 J	0.014 U	0.0086 U
Zinc		12.5	0.34	2.5	14.9	170	207	10	4.4	3.6	6.2	0.75
Mercury		0.000045 U	0.000027 UJ	0.000025 U	0.000041 UJ	0.000035 U	0.00004 U	0.000049 U	0.000015 J	0.000032	0.000051 U	0.000032 U
SEM/AVS Ratio		0.55	0.026	0.077	0.26	0.69	0.97	0.19	0.16	3.2	0.62	0.01
Geotechnical (%)												
Liquid Limit		69	71.2	55.6	74.5	71.1	74.1	72.6	46.6	55.9	71.3	--
Plastic Limit		55.5	58.7	42.9	58.7	61.8	66.1	19.5	46.5	47.6	68	--
Plasticity Index		13.5	12.5	12.7	15.8	9.3	8.0	53.1	0.1	8.3	3.3	--
Bulk Density Of Soils		29.5	25.7	47.2	41.9	27.2	32.9	17.7	67.1	45.5	21.2	--
Moisture, Percent		177.9	88.5	80.9	69.2	157.4	129.9	257.1	46.1	75.1	168.4	--

Key:

J = Estimated value

J+ = Estimated value with high bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

UJ- = Not detected/estimated detection limit with low bias

Other

µmol/g = Micromole per gram

mm = Millimeter

mg/kg = Milligrams per kilogram

ng/kg = Nanograms per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Notes

(1) Sum = Total of detect values in the analyte group.

Table 3-5b Summary for Complete Data for Phase II (July 2019) Sediment Toxicity (Midge), Eighteen Mile Creek OU3, New York

Sample ID	Location	COMBINED SEXES				FEMALE LIFECYCLE				MALE LIFECYCLE	
		20-Day Survival (%)	AFDW Growth (mg)	Lifecycle Survival (%)	Emergence (%)	Average Days to Emerge	Average Days Alive	Average Eggs Produced	Average Eggs Hatched (%)	Average Days to Emerge	Average Days Alive
Lab Control	Lab Control	83.3	1.71	72.9	72.9	28.4	4.4	1132	69.9	23.9	5.3
OU3-BG-SED02-JUL19	Reference Area	72.9	2.39	55.2 ^a	55.2 ^a	26.2	4.3	1309	69.5	22.0	6.4
Downstream from Burt Dam (Zone 1)											
OU3-P1-SD01-JUL19	OU3 Zone 1	60.4	1.93	58.3	58.3	26.6	4.8	1610	91.8	23.2	5.2
OU3-P1-SD02-JUL19	OU3 Zone 1	68.8 ^a	1.78 ^b	59.4 ^a	59.4 ^a	28.9	4.1	1173	75.0	23.7	5.2 ^b
OU3-P1-SD03-JUL19	OU3 Zone 1	79.2	1.67 ^b	58.3 ^a	58.3 ^a	27.0	5.0	1554	98.9	25.4 ^b	5.6
Between Burt Dam and Newfane Dam (Zone 2)											
OU3-P2-SD01-JUL19	OU3 Zone 2	14.6 ^{ab}	1.52 ^b	9.4 ^{ab}	9.4 ^{ab}	34 ^{ab}	1.3 ^b	299 ^{ab}	24.3	29.4 ^{ab}	6.8
OU3-P2-SD02-JUL19	OU3 Zone 2	0.0 ^{ab}	--	0.0 ^{ab}	0.0 ^{ab}	--	--	--	--	--	--
OU3-P2-SD02-FD-JUL19	OU3 Zone 2	0.0 ^{ab}	--	0.0 ^{ab}	0.0 ^{ab}	--	--	--	--	--	--
OU3-P2-SD03-JUL19	OU3 Zone 2	60.4	1.68 ^b	53.1 ^a	53.1 ^a	27.0	3.7	1171	74.3	22.9	6.1
Upstream from Newfane Dam (Zone 3)											
OU3-P3-SD01-JUL19	OU3 Zone 3	8.3 ^{ab}	3.85	20.8 ^{ab}	20.8 ^{ab}	25.6	4.6	1304	68.6	21.6	5.2
OU3-P3-SD02-JUL19	OU3 Zone 3	62.5 ^a	1.86	46.9 ^a	46.9 ^a	26.2	3.8 ^a	1124	67.6	22.2	5.8
OU3-P3-SD03-JUL19	OU3 Zone 3	35.4 ^{ab}	3.15	22.9 ^{ab}	22.9 ^{ab}	24.0	4.6	1964	93.8	23.0	6.3

Key:

a = Indicates a statistically significant reduction ($p < 0.05$) in the response compared with the corresponding response in the laboratory control sample.

b = Indicates a statistically significant reduction ($p < 0.05$) in the response compared with the corresponding response in the reference area sample.

Shading = Significantly different from laboratory control and/or reference sample.

AFDW = Ash free dry weight

mg = Milligrams

-- = Analyte not analyzed for

Table 3-5c Summary for Complete Data for Phase II (July 2019) Sediment Toxicity (Amphipod), Eighteen Mile Creek OU3, New York

Sample ID	Location	PERCENT (%) SURVIVAL			GROWTH (mg)		BIOMASS (mg)		REPRODUCTION (Number/Female) Day 42
		Day 28	Day 35	Day 42	Day 28	Day 42	Day 28	Day 42	
OU3-BG-SED02-JUL19	Reference Area	96.7	95.0	87.5	0.345	0.523	0.326	0.456	9.16
Downstream from Burt Dam (Zone 1)									
OU3-P1-SD01-JUL19	OU3 Zone 1	98.3	95.0	92.5	0.253 ^b	0.485	0.248 ^b	0.445	7.57
OU3-P1-SD02-JUL19	OU3 Zone 1	97.5	95.0	93.8	0.299	0.510	0.299	0.473	5.56 ^b
OU3-P1-SD03-JUL19	OU3 Zone 1	95.8	96.3	93.8	0.391	0.553	0.368	0.515	9.56
Between Burt Dam and Newfane Dam (Zone 2)									
OU3-P2-SD01-JUL19	OU3 Zone 2	85.0 ^{ab}	82.5	82.5	0.235 ^{ab}	0.544	0.205 ^{ab}	0.425	5.34 ^b
OU3-P2-SD02-JUL19	OU3 Zone 2	0.8 ^{ab}	1.3 ^{ab}	1.3 ^{ab}	-- ^{ab}	0.840	-- ^{ab}	0.084 ^{ab}	0.00 ^{ab}
OU3-P2-SD02-FD-JUL19	OU3 Zone 2	0.8 ^{ab}	1.3 ^{ab}	1.3 ^{ab}	-- ^{ab}	0.870	-- ^{ab}	0.087 ^{ab}	0.00 ^{ab}
OU3-P2-SD03-JUL19	OU3 Zone 2	98.3	98.8	98.8	0.265 ^b	0.456 ^b	0.251 ^b	0.451	5.91 ^b
Upstream from Newfane Dam (Zone 3)									
OU3-P3-SD01-JUL19	OU3 Zone 3	91.7 ^b	87.5	85.0	0.358	0.467 ^b	0.321	0.396 ^b	5.12 ^b
OU3-P3-SD02-JUL19	OU3 Zone 3	99.2	100.0	98.8	0.304	0.478	0.296	0.471	6.36 ^b
OU3-P3-SD03-JUL19	OU3 Zone 3	89.2 ^{ab}	87.5 ^b	86.3	0.307	0.512	0.281 ^b	0.441	5.19 ^b

a = Indicates a statistically significant reduction ($p < 0.05$) in the response compared with the corresponding response in the laboratory control sample.

b = Indicates a statistically significant reduction ($p < 0.05$) in the response compared with the corresponding response in the reference area sample.

Shading = Significantly different from laboratory control and/or reference sample.

mg = Milligrams

-- = Analyte not analyzed for

Table 3-6a Summary for Positive Analytical Result for Phase II (July 2019) Soil Invertebrates, Eighteen Mile Creek OU3, New York

Sample ID	Sample Date	Units	PCB Congener Sum	Barium	Copper	Lead	Chromium	Nickel	Selenium	Vanadium	Lipids (%)	Moisture Content (%)
Reach 6												
OU3-R6-T09E-S01-EW	7/25/2019	mg/kg	18.205 J	13.4	15.2	18.3	4.2	2.6	2.2	1.3	1.85	76.6
OU3-R6-T09E-S02-EW	7/24/2019	mg/kg	5.224 J	5.5	7.8	5.4	1.5	1.0	2.0	0.61	0.87	84.0
OU3-R6-T09E-S03-EW	7/24/2019	mg/kg	0.860 J	7.8	6.4	6.8	2.2	1.6	2.9	1.7	1.06	78.8
OU3-R6-T09E-S04-EW	7/24/2019	mg/kg	0.026	6.5	4.5	0.85	0.59	0.57	2.9	0.82	0.76	79.0
Reach 7												
OU3-R7-T10W-S01-EW	7/25/2019	mg/kg	35.022 J	3.0	5.7	2.9	0.60	2.3	1.2	0.23	1.27	81.3
OU3-R7-T12E-S01-EW	7/17/2019	mg/kg	4.908 J	6.6	17.4	17.4	3.4	0.81	2.2	0.9	2.5	82.9
OU3-R7-T12E-S02-EW	7/17/2019	mg/kg	1.594 J	3.1	6.9	6.4	1.3	19.4	1.0	0.43	1.6	83.5
OU3-R7-T12E-S03-EW	7/22/2019	mg/kg	6.328 J	10.5	41.9	54.7	82.6	0.51	0.77	12.5	1.41	80.5

Key:

J = Estimated value

Other

mg/kg = Milligrams per kilogram

"-EW" denotes soil invertebrates

PCB = Polychlorinated biphenyl

Table 3-6b Summary for Positive Analytical Result for Phase II (July 2019) Emergent Aquatic Insects, Eighteen Mile Creek OU3, New York

Sample ID	Sample Date	Units	PCB Congener Sum	HMW PAHs Sum	LMW PAHs Sum	PAH Mixtures Sum	Barium	Copper	Lead	Selenium	Vanadium	Lipids (%)	Moisture Content (%)
Zone 1 -- Downstream from Burt Dam													
OU3-P1-EA01/EA02-JUL19	7/25/2019	mg/kg	0.784 J	--	--	--	1	12.5	0.14	1.4	0.1	--	47.3
OU3-P1-EA03-JUL19	7/25/2019	mg/kg	0.795 J	--	--	--	0.98	12.7	0.11	1.4	0.11	--	--
Zone 2 -- Between Burt Dam and Newfane Dam													
OU3-P2-EA01-JUL19	7/17/2019	mg/kg	0.415 J	0.015	0.109	0.124	0.75	6.3	0.089 J	0.67	0.1 U	4.9	70.3
OU3-P2-EA02-JUL19	7/17/2019	mg/kg	0.425 J	0.015 J	0.214 J	0.228 J	0.74	7.6	0.11	0.92	0.1 U	3.7	72.5
OU3-P2-EA03-JUL19	7/17/2019	mg/kg	0.425 J	0.012 J	0.079	0.091 J	0.62	7.4	0.075 J	0.98	0.11 U	3.4	73.8
Zone 3 -- Upstream from Newfane Dam													
OU3-P3-EA01-JUL19	7/20/2019	mg/kg	1.382 J	0.030 J	0.035	0.065 J	3.3	9.4	0.28	0.68	0.11 U	5.9	68.1
OU3-P3-EA02-JUL19	7/20/2019	mg/kg	1.881 J	0.034 J	0.028	0.062 J	1.1	8.6	0.19	1	0.11 U	5.1	69.7
OU3-P3-EA03-JUL19	7/22/2019	mg/kg	2.267 J	0.040 J	0.019 J	0.059 J	1.1	11.9	1.1	1.3	0.064 J	7.3	57.7

Key:

J = Estimated value

U = Not detected (quantitation limit shown)

Other

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-EA" denotes emergent aquatic insects

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Table 4-1a Summary for Positive Analytical Field Duplicate Data for Phase II (October November 2019) Surface Water High Flow Events, Eighteen Mile Creek OU3, New York

Analytes	Reach No.: Zone No.:	04 Zone 2	04 Zone 2	04 Zone 2	04 Zone 2	07 Zone 3	07 Zone 3	07 Zone 3	07 Zone 3
	Sample ID:	OU3-R4- SW10-EV2-FD- NOV19	OU3-R4- SW10-EV2- NOV19	OU3-R4- SW10-EV2-FF- FD-NOV19	OU3-R4- SW10-EV2-FF- NOV19 ⁽²⁾	OU3-R7- SW21-EV1-FD- OCT19	OU3-R7- SW21-EV1- OCT19	OU3-R7- SW21-EV1-FF- FD-OCT19	OU3-R7- SW21-EV1-FF- OCT19
	Sample Date:	11/1/2019	11/1/2019	11/1/2019	11/1/2019	10/2/2019	10/2/2019	10/2/2019	10/2/2019
Metals (ug/L)									
Aluminum		2100	2000	20 U	20 U	190 U	190 U	20 U	20 U
Arsenic		1.9	1.8	1.1	1.1	1 U	1 U	1 U	1 U
Barium		53	53	33 U	36 U	24	25	24	23
Calcium		48000	49000	49000 U	48000 U	61000	61000	62000	64000
Chromium, Total		3.9	3.7	1 U	1 U	1 U	1 U	1 U	1 U
Cobalt		1.2	1.1	1 U	1 U	1 U	1 U	1 U	1 U
Copper		11	10	3.3 U	3.3 U	3.1	3	1.4	1.4
Iron		3000	2900	150	170	370	380	20 U	20 U
Lead		9.5	9	1 U	1 U	1.6	1.6	1 U	1 U
Magnesium		11000	11000	10000	11000	10000	11000	11000	10000
Manganese		120	130	66 U	65 U	22	22	5.1	5.3
Nickel		3.9	3.8	1.1 U	1.1 U	1	1.1	1 U	1 U
Potassium		8700	8800	8600 U	8500 U	2400	2400	2400	2400
Sodium		31000	32000	32000 U	35000 U	29000 U	30000 U	31000	29000
Vanadium		4	3.9	1 U	1 U	1 U	1 U	1 U	1 U
Zinc		30	28	3.2 U	3.4 U	6.8	5.7	2 U	2.6
Mercury (ug/L)									
None Detected									
PCB Congeners (ng/L)									
Total PCB Congener ⁽¹⁾		150 J	160 J	5.1 J	--	46 J	36 J	0.107 J	0.09 J
Total Suspended Solids (mg/L)									
Residue, Non-Filterable		78	84	--	--	15	14	--	--
Total Dissolved Solids (mg/L)									
Residue, Filterable		340	340	--	--	310	320	--	--
Dissolved Organic Carbon (mg/L)									
Dissolved Organic Carbon		--	--	13	13	--	--	4 U	4 U

Key:

J = Estimated value

U = Not detected (quantitation limit shown)

Notes

(1) Sum = Total of detect values in the analyte group.

(2) Field duplicate for PCB Congeners (dissolved) results were used as parent sample was not filtered

Other

µg/L = Micrograms per liter

ng/L = Nanograms per liter

mg/L = Milligrams per liter

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-FF" denotes field filtered sample

PCB = Polychlorinated biphenyl

Table 4-1b Summary for Positive Analytical Data for Phase II Surface Water Field Blanks, Eighteen Mile Creek OU3, New York

Analytes	Sample ID:	OU3-RB06-03OCT2019	OU3-RB04-03OCT2019 ⁽²⁾	OU3-RB05-01NOV2019 ⁽²⁾
	Sample Date:	10/3/2019	10/3/2019	11/1/2019
Metals (ug/L)				
Aluminum		39	20 UJ	20 U
Barium		1 U	1 U	41
Calcium		310	100 U	69000
Copper		1 U	1 U	2.3
Iron		20 U	20 U	53
Magnesium		100 U	100 U	16000
Manganese		1 U	1 U	50
Nickel		1 U	1 U	1.1
Potassium		100 U	100 U	5600
Sodium		670	200 U	59000
Zinc		3.3	2 U	2.6
Mercury (ug/L)				
<i>None Detected</i>				
PCB Congeners (ng/L)				
Total PCB Congener ⁽¹⁾		2	6.3	ND
Dissolved Organic Carbon (mg/L)				
Dissolved Organic Carbon		--	1.1	1 UJ

Key:

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

Notes

(1) Sum = Total of detect values in the analyte group.

(2) Samples were filtered in field for analyte

Other

µg/L = Micrograms per liter

ng/L = Nanograms per liter

mg/L = Milligrams per liter

-- = Analyte not analyzed for

PCB = Polychlorinated biphenyl

Table 4-2a Summary for Positive Analytical Field Duplicate Data for Phase II (July October 2019) Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.:	06 T06	06 T06	06 T08	06 T08	06 T09	06 T09	07 T11	07 T11	07 T12	07 T12	07 T14	07 T14	07 T12	07 T12
Sample ID:	OU3-R6-T06E-S06-Z1	OU3-R6-T06E-FD	OU3-R6-T08E-S07-Z2	OU3-R6-T08E-FD	OU3-R6-T09E-S08-Z1	OU3-R6-T09E2-FD	OU3-R7-T11W-S08-Z1	OU3-R7-T11W-FD	OU3-R7-T12E-S03-EW-Z1	OU3-R7-T12E-FD	OU3-R7-T14E-S05-Z1	OU3-R7-T14E-FD	OU3-R7-T12E-S12-Z2	OU3-R7-T12E-FD2
Sample Date:	7/26/2019	7/26/2019	7/31/2019	7/31/2019	7/25/2019	7/25/2019	7/26/2019	7/26/2019	7/17/2019	7/17/2019	7/16/2019	7/16/2019	10/7/2019	10/7/2019
Analytes														
PCB Aroclor (mg/kg)														
PCB-1248 (Aroclor 1248)	0.02 J	0.021 J	0.038 U	0.038 U	0.058 U	0.054 U	0.0051 J	0.0064 J	0.056 U	0.057 UJ	0.016 J-	0.013 J-	0.042 U	0.038 U
PCB-1254 (Aroclor 1254)	0.025 J	0.026 J	0.038 U	0.038 U	0.058 U	0.054 U	0.0069 J	0.0088 J	2.7 J	0.71 J-	0.019 J-	0.017 J-	0.082 J+	0.039 J+
PCB-1260 (Aroclor 1260)	0.019 J	0.017 J	0.038 U	0.038 U	0.058 U	0.054 U	0.04 U	0.042 U	0.76 J	0.31 J-	0.066 UJ	0.062 UJ	0.042 U	0.038 U
PCB, Total ⁽¹⁾	0.064 J	0.064 J	0.038 U	0.038 U	0.058 U	0.054 U	0.012 J	0.0152 J	3.46 J	1.02 J-	0.035 J-	0.03 J-	0.082 J+	0.039 J+
SVOCs + PAHs (mg/kg)														
2-Methylnaphthalene	0.0047 J	0.0047 J	0.0038 U	0.0038 U	0.0058 U	0.0054 U	0.00097 J	0.0011 J	0.021	0.011	0.0032 J	0.0025 J	0.023	0.017
4-Chloroaniline	0.57 U	0.58 U	0.38 U	0.38 U	0.58 U	0.54 U	0.4 U	0.42 U	0.06 J	0.57 U	0.66 U	0.62 U	0.42 U	0.38 U
Acenaphthene	0.01	0.0094	0.0038 U	0.0038 U	0.0058 U	0.0054 U	0.0013 J	0.0013 J	0.016 J	0.0091 J	0.0095	0.0083	0.033	0.036
Acenaphthylene	0.019	0.027	0.0023 J	0.0029 J	0.0058 U	0.0054 U	0.0045	0.0048	0.076	0.024	0.0093	0.0081	0.095	0.086
Acetophenone	0.57 U	0.58 U	0.38 U	0.38 U	0.58 U	0.54 U	0.4 U	0.42 U	0.093 J	0.57 U	0.66 U	0.62 U	0.42 U	0.38 U
Anthracene	0.046	0.048	0.00295 J	0.0038	0.0058 U	0.0054 U	0.0065	0.0064	0.079 J	0.029 J	0.024	0.023	0.22	0.18
Benzo(A)Anthracene	0.21	0.22	0.0127 J	0.017 J	0.002 J	0.0054 U	0.029	0.027	0.39	0.19	0.18	0.15	0.74	0.61
Benzo(A)Pyrene	0.12	0.16	0.0135 J	0.017	0.0058 U	0.0054 U	0.034	0.032	0.42	0.23	0.21	0.17	0.64	0.54
Benzo(B)Fluoranthene	0.17	0.23	0.0185 J	0.023	0.0058 U	0.0054 U	0.056	0.052	0.58	0.38	0.34	0.29	0.89	0.73
Benzo(G,H,I)Perylene	0.08	0.08	0.00825 J	0.01	0.0058 U	0.0054 U	0.02	0.018	0.29	0.15	0.13	0.1	0.42	0.34
Benzo(K)Fluoranthene	0.077	0.073	0.00765 J	0.0095	0.0058 U	0.0054 U	0.015	0.015	0.22	0.12	0.12	0.084	0.31	0.3
Biphenyl (Diphenyl)	0.3 U	0.3 U	0.19 U	0.2 U	0.3 U	0.28 U	0.21 U	0.22 U	0.29 U	0.29 U	0.34 U	0.32 U	0.21 U	0.2 U
Bis(2-Ethylhexyl) Phthalate	0.3 U	0.078 J	0.19 U	0.2 U	0.3 U	0.28 U	0.21 U	0.22 U	0.53 J	0.092 J	0.34 U	0.32 U	0.21 U	0.2 U
Carbazole	0.57 U	0.58 U	0.38 U	0.38 U	0.58 U	0.54 U	0.4 U	0.42 U	0.56 U	0.57 U	0.66 U	0.62 U	0.11 J	0.073 J
Chrysene	0.14	0.16	0.00995 J	0.013	0.0016 J	0.0054 U	0.029	0.027	0.36	0.24	0.23	0.19	0.72	0.6
Dibenz(A,H)Anthracene	0.034	0.032	0.00265 J	0.0035 J	0.0058 U	0.0054 U	0.0066	0.0063	0.087	0.052	0.044	0.031	0.13 J	0.1 J
Dibenzofuran	0.3 U	0.3 U	0.19 U	0.2 U	0.3 U	0.28 U	0.21 U	0.22 U	0.29 U	0.29 U	0.34 U	0.32 U	0.045 J	0.2 U
Dimethyl Phthalate	0.72	0.8	0.125 J	0.13 J	0.54	0.35	0.34	0.48	0.23 J	0.25 J	0.23 J	0.23 J	0.35	0.23
Di-N-Butyl Phthalate	0.3 U	0.3 U	0.19 U	0.2 U	0.3 U	0.28 U	0.21 U	0.22 U	0.29 U	0.29 U	0.34 U	0.32 U	0.21 U	0.2 U
Fluoranthene	0.25	0.31	0.017 J	0.022	0.0026 J	0.0023 J	0.053	0.049	0.66	0.42	0.41	0.35	1.7	1.3
Fluorene	0.011	0.013	0.0011 J	0.0011 J	0.0058 U	0.0054 U	0.0016 J	0.0016 J	0.024	0.011	0.0097	0.0089	0.074	0.073
Indeno(1,2,3-C,D)Pyrene	0.088	0.089	0.0076 J	0.0094	0.0058 U	0.0054 U	0.021	0.02	0.3	0.14	0.13	0.11	0.39	0.33
Naphthalene	0.0056 J	0.0061	0.00098 J	0.00098 J	0.0058 U	0.0054 U	0.0013 J	0.0012 J	0.021	0.012	0.0048 J	0.0036 J	0.018	0.013
Pentachlorophenol	0.012 U	0.012 U	0.0077 U	0.0077 U	0.012 U	0.011 U	0.0081 U	0.0085 U	0.011 U	0.012 U	0.013 U	0.013 U	0.0085 U	0.0077 U
Phenanthrene	0.15	0.19	0.00955 J	0.012 J	0.0058 U	0.0054 U	0.023	0.021	0.33	0.17	0.16	0.14	1.1	0.85
Phenol	0.12 J	0.17 J	0.075 J	0.083 J	0.58 U	0.54 U	0.054 J	0.076 J	0.56 U	0.57 U	0.66 U	0.62 U	0.13 J	0.088 J
Pyrene	0.39	0.35	0.0195 J	0.025	0.0028 J	0.0023 J	0.05	0.046	0.57	0.36	0.36	0.31	1.3	1.1
PAH Mixtures ⁽¹⁾	1.8053 J	2.0022 J	0.13314 J	0.17018 J	0.009 J	0.0046 J	0.35277 J	0.3297 J	4.444 J	2.5481 J	2.3745 J	1.9794 J	8.803 J	7.205 J
PAH, Total HMW ⁽¹⁾	1.559	1.704	0.1173 J	0.1494 J	0.009 J	0.0046 J	0.3136	0.2923	3.877	2.282	2.154	1.785	7.24 J	5.95 J
PAH, Total LMW ⁽¹⁾	0.2463 J	0.2982 J	0.01584 J	0.02078 J	0.0058 U	0.0054 U	0.03917 J	0.0374 J	0.567 J	0.2661 J	0.2205 J	0.1944 J	1.563	1.255

Table 4-2a Summary for Positive Analytical Field Duplicate Data for Phase II (July October 2019) Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.:	06 T06	06 T06	06 T08	06 T08	06 T09	06 T09	07 T11	07 T11	07 T12	07 T12	07 T14	07 T14	07 T12	07 T12
Sample ID:	OU3-R6-T06E-S06-Z1	OU3-R6-T06E-FD	OU3-R6-T08E-S07-Z2	OU3-R6-T08E-FD	OU3-R6-T09E-S08-Z1	OU3-R6-T09E2-FD	OU3-R7-T11W-S08-Z1	OU3-R7-T11W-FD	OU3-R7-T12E-S03-EW-Z1	OU3-R7-T12E-FD	OU3-R7-T14E-S05-Z1	OU3-R7-T14E-FD	OU3-R7-T12E-S12-Z2	OU3-R7-T12E-FD2
Sample Date:	7/26/2019	7/26/2019	7/31/2019	7/31/2019	7/25/2019	7/25/2019	7/26/2019	7/26/2019	7/17/2019	7/17/2019	7/16/2019	7/16/2019	10/7/2019	10/7/2019
Analytes														
Metals (mg/kg)														
Antimony	1.3 U	1.3 U	0.83 U	0.84 U	1.3 U	1.2 U	0.87 U	0.93 U	6.6 J	15.2 J	1.4 U	1.4 U	0.95 U	0.86 U
Arsenic	5	7.5	2.5 J	2.6	5.4	5	4.4	4.5	8.6	12.3	6.6	6.2	13.5	16.4
Barium	142	169	98.55 J	97.5	141	113	145	148	173	263	168	158	239	165
Beryllium	0.63 U	0.63 U	0.415 J	0.4 J	1.2	1	0.63	0.65	0.62 U	0.64 U	0.72 U	0.68 U	0.75	0.69
Cadmium	1.8	2.5	0.135 J	0.16 J	0.65 U	0.61 U	0.63	0.68	9.4 J	18.9 J	2.5	2.2	2.3	1.3
Chromium, Total	101	123	10.05 J	10.1	26.6	21.8	22.4	22.5	1620 J	3270 J	87.4	78.7	428	238
Cobalt	9.6	11.9	8.5 J	8.6	13.7	11.1	8.8	8.6	19.5 J	33.8 J	9.5	8.5	9.2	6.9
Copper	223	259	10.25 J	10.4	38.2	34.4	49.5	49.7	619 J	1120 J	236	210	634	277
Lead	293	328	21.35 J	21.9	15.9	11.6	67.3	65	839 J	1740 J	282	256	473	233
Manganese	600	711	567 J	565	240	240	1070	1030	685	570	900	760	355	417
Nickel	50.5	62.5	10.8 J	10.9	35.4	28.1	22.2	21.5	461 J	816 J	48	42.9	110	58.6
Selenium	0.59 J	0.76 J	0.25 J	2.1 U	0.82 J	0.35 J	0.35 J	0.39 J	1 J	1.2 J	1.1 J	1 J	0.94 J	0.77 J
Silver	1.3	1.5	0.42 U	0.42 U	0.65 U	0.61 U	0.43 U	0.46 U	5.4 J	10.6 J	2.6	2.3	4.7	2.1
Vanadium	18.3	21.5	12.25 J	12.4	37.1	31.6	16.3	16.4	256 J	488 J	18.7	17.1	26.8	21.5
Zinc	737	884	46.75 J	47.8	84.7	68.4	148	144	1760 J	3220 J	835	741	709	374
Mercury (mg/kg)														
Mercury	1.2	1.6	0.255 J	0.22	0.15 U	0.14 U	0.37	0.35	2.95 J	2.7	0.62	0.61	0.16	0.14

Key:

- J = Estimated value
- J+ = Estimated value with high bias
- J- = Estimated value with low bias
- U = Not detected (quantitation limit shown)
- UJ = Not detected/estimated detection limit

Notes

(1) Sum = Total of detect values in the analyte group.

Other

- mg/kg = Milligrams per kilogram
- ng/kg = Nanograms per kilogram
- = Analyte not analyzed for
- "-FD" denotes field duplicate sample
- "-Z1" denotes sample depth 0-6 inches
- "-Z2" denotes sample depth 6-12 inches
- SVOC = Semivolatile Organic Compounds
- PAH = Polycyclic aromatic hydrocarbon
- PCB = Polychlorinated biphenyl
- HMW = High molecular weight
- LMW = Low molecular weight

Table 4-2a Summary for Positive Analytical Field Duplicate Data for Phase II (July October 2019) Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.:	07 T15	07 T15	07 T17	07 T17	07 T19	07 T19	07 T21	07 T21	07 T23	07 T23	08 ID06 OU3-R8- ID06E2-S05- Z2	08 ID06 OU3-R8- ID06E-FD
Sample ID:	OU3-R7-T15E-S02-Z2	OU3-R7-T15E-FD	OU3-R7-T17W-S04-Z1	OU3-R7-T17W-FD	OU3-R7-T19W-S01-Z2	OU3-R7-T19W-FD	OU3-R7-T21E-S02-Z2	OU3-R7-T21E-FD	OU3-R7-T23E-S03-Z2	OU3-R7-T23E-FD		
Sample Date:	10/3/2019	10/3/2019	9/30/2019	9/30/2019	10/4/2019	10/4/2019	10/3/2019	10/3/2019	9/30/2019	9/30/2019	7/15/2019	7/15/2019
Analytes												
PCB Aroclor (mg/kg)												
PCB-1248 (Aroclor 1248)	0.043 U	0.042 U	0.043 U	0.04 U	2.4	1.7	0.047 U	0.047 U	0.064 J	0.12	0.048 U	0.048 U
PCB-1254 (Aroclor 1254)	0.043 U	0.042 U	0.043 U	0.04 U	2.1	1.5	0.047 U	0.047 U	0.26	0.16	0.048 U	0.048 U
PCB-1260 (Aroclor 1260)	0.043 U	0.042 U	0.043 U	0.04 U	0.054 U	0.054 U	0.047 U	0.047 U	0.042 U	0.043 U	0.048 U	0.048 U
PCB, Total ⁽¹⁾	0.043 U	0.042 U	0.043 U	0.04 U	4.5 J	3.2 J	0.047 U	0.047 U	0.324 J	0.28 J	0.048 U	0.048 U
SVOCs + PAHs (mg/kg)												
2-Methylnaphthalene	0.0012 J	0.0012 J	0.0043 U	--	0.0085	0.014	0.24 UJ	0.24 U	0.0061	0.0078	1.095 J	0.79 J
4-Chloroaniline	0.43 U	0.42 U	0.43 U	--	0.54 U	0.55 U	0.47 UJ	0.47 U	0.42 U	0.43 U	0.48 U	0.48 U
Acenaphthene	0.0011 J	0.0011 J	0.0043 U	--	0.021	0.028	0.014	0.0093	0.013	0.013	1.5 J	1.2
Acenaphthylene	0.0021 J	0.0022 J	0.0043 U	--	0.04	0.049	0.0044 J	0.0037 J	0.01	0.017	0.25 U	0.25 U
Acetophenone	0.43 U	0.42 U	0.43 U	--	0.54 U	0.55 U	0.47 UJ	0.47 U	0.42 U	0.43 U	0.48 U	0.48 U
Anthracene	0.0032 J	0.0029 J	0.0043 U	--	0.096	0.11	0.036	0.027	0.044	0.038	2 J	1.7
Benzo(A)Anthracene	0.014	0.014	0.0043 U	--	0.7	0.91	0.074	0.052	0.21	0.26	4.9 J	3.4 J
Benzo(A)Pyrene	0.013	0.013	0.00087 J	--	0.67	0.91	0.063	0.041	0.19	0.23	3.3 J	2.9
Benzo(B)Fluoranthene	0.022	0.022	0.0018 J	--	0.89	1.1	0.094	0.064	0.26	0.28	3.25 J	2.9
Benzo(G,H,I)Perylene	0.0066	0.0063	0.0043 U	--	0.44	0.6	0.024	0.015	0.061	0.086	1.03 J	0.86
Benzo(K)Fluoranthene	0.0075	0.0071	0.0043 U	--	0.28	0.38	0.026	0.021	0.067	0.066	1.3 J	1.2
Biphenyl (Diphenyl)	0.22 U	0.22 U	0.22 U	--	0.28 U	0.28 U	0.24 UJ	0.24 U	0.22 U	0.22 U	0.17 J	0.13 J
Bis(2-Ethylhexyl) Phthalate	0.22 U	0.22 U	0.22 U	--	1.3 J	3 J	0.24 UJ	0.24 U	0.8 J	0.19 J	0.25 U	0.25 U
Carbazole	0.43 U	0.42 U	0.43 U	--	0.54 U	0.063 J	0.47 UJ	0.47 U	0.42 U	0.43 U	0.18 J	0.14 J
Chrysene	0.015	0.015	0.0043 U	--	0.77	1	0.059	0.041	0.21 J	0.28	5.45 J	3.7 J
Dibenz(A,H)Anthracene	0.0019 J	0.0019 J	0.0043 U	--	0.097	0.11	0.0084	0.008	0.022	0.029	0.425 J	0.4
Dibenzofuran	0.22 U	0.22 U	0.22 U	--	0.28 U	0.28 U	0.24 UJ	0.24 U	0.22 U	0.22 U	0.2 J	0.16 J
Dimethyl Phthalate	0.27 J	0.51 J	0.57	--	0.33 J	0.57 J	0.34 J	0.38	0.51	0.58	0.064 J	0.064 J
Di-N-Butyl Phthalate	0.22 U	0.22 U	0.22 U	--	0.28 U	0.11 J	0.24 UJ	0.24 U	0.22 U	0.22 U	0.25 U	0.25 U
Fluoranthene	0.033	0.032	0.0014 J	--	1	1.4	0.14	0.085	0.42	0.25	4.3 J	4 J
Fluorene	0.0014 J	0.0013 J	0.0043 U	--	0.025	0.035	0.014	0.011	0.014	0.012	1.06 J	0.82
Indeno(1,2,3-C,D)Pyrene	0.0072	0.0069	0.0043 U	--	0.36	0.5	0.026	0.019	0.066	0.088	0.865 J	0.75
Naphthalene	0.0015 J	0.0014 J	0.0043 U	--	0.011	0.018	0.0046 J	0.0028 J	0.0074	0.0068	0.885 J	0.57 J
Pentachlorophenol	0.0088 U	0.0086 U	0.0087 U	--	0.011 U	0.0019 J	0.0095 U	0.0096 U	0.0014 J	0.0087 U	0.48 U	0.48 U
Phenanthrene	0.02	0.019	0.0043 U	--	0.45	0.62	0.14	0.09	0.26	0.22	11.5 J	10
Phenol	0.046 J	0.098 J	0.18 J	--	0.12 J	0.18 J	0.074 J	0.1 J	0.17 J	0.092 J	0.48 U	0.48 U
Pyrene	0.027	0.027	0.0014 J	--	1.2	1.6	0.15 J	0.086 J	0.36	0.42	10.85 J	9.7
PAH Mixtures ⁽¹⁾	0.1777 J	0.1743 J	0.00547 J	--	7.0585	9.384	0.8811 J	0.5793 J	2.2205 J	2.3036	53.71 J	44.89 J
PAH, Total HMW ⁽¹⁾	0.1472 J	0.1452 J	0.00547 J	--	6.407	8.51	0.6644 J	0.432 J	1.866 J	1.989	35.67 J	29.81 J
PAH, Total LMW ⁽¹⁾	0.0305 J	0.0291 J	0.0043 U	--	0.6515	0.874	0.2167 J	0.1473 J	0.3545	0.3146	18.04 J	15.08 J

Table 4-2a Summary for Positive Analytical Field Duplicate Data for Phase II (July October 2019) Soils, Eighteen Mile Creek OU3, New York

Reach No.: Transect No.:	07 T15	07 T15	07 T17	07 T17	07 T19	07 T19	07 T21	07 T21	07 T23	07 T23	08 ID06 OU3-R8- ID06E2-S05- Z2	08 ID06 OU3-R8- ID06E-FD
Sample ID:	OU3-R7-T15E-S02-Z2	OU3-R7-T15E-FD	OU3-R7-T17W-S04-Z1	OU3-R7-T17W-FD	OU3-R7-T19W-S01-Z2	OU3-R7-T19W-FD	OU3-R7-T21E-S02-Z2	OU3-R7-T21E-FD	OU3-R7-T23E-S03-Z2	OU3-R7-T23E-FD		
Sample Date:	10/3/2019	10/3/2019	9/30/2019	9/30/2019	10/4/2019	10/4/2019	10/3/2019	10/3/2019	9/30/2019	9/30/2019	7/15/2019	7/15/2019
Analytes												
Metals (mg/kg)												
Antimony	0.91 U	0.95 U	0.93 U	0.9 U	1.2 U	1.2 U	1 U	1 U	0.88 U	0.95 U	25.25 J	24.3
Arsenic	4.7	4.2	4.2	4.2	4.4	4.7	6.2	6.3	10.9	10.4	2.6 J	2.6
Barium	77.5	74.4	61.8	59.7	130	143	218	219	203	195	37.05 J	34.2
Beryllium	0.51	0.47 U	0.75	0.68	0.6 U	0.6 U	0.72	0.72	0.67	0.59	0.52 U	0.52 U
Cadmium	0.67	0.58	0.06 J	0.04 J	2.1	2.3	0.74	0.79	1.2	1.2	2.85 J	2.9
Chromium, Total	15.4	15.1	16.6	16	84.2	96	27.3	28.5	47	45.4	429.5 J	435
Cobalt	8.8	8.4	12.2	11.1	7.1	7.8	10.3	10.4	10.7	10.2	9.1 J	8.7
Copper	34.2	43.2	24.9	25.5	302	341	67.3	70.5	144	134	34650 J	33100
Lead	38.4	40	9.8	9.7	315	368	128	137	213	207	1215 J	1190
Manganese	673	576	450	450	592	603	888	965	906	883	2430 J	2250
Nickel	21.7	22.5	23	21.9	46	54.8	25.2	26	40.4	37.3	704 J	704
Selenium	0.25 J	0.25 J	0.47 J	0.37 J	0.82 J	0.81 J	0.83 J	0.76 J	2.2 U	2.4 U	2.6 U	2.6 U
Silver	0.46 U	0.47 U	0.47 U	0.031 J	1.9	2.1	0.51 U	0.51 U	0.7	1.1	5.3 J	5.3
Vanadium	20	17.8	22.1	21.5	10.5	12	17.5	17.2	18.4	17.1	73.2 J	71.9
Zinc	210	215	61.7	57.9	688	814	192	204	368	351	502.5 J	500
Mercury (mg/kg)												
Mercury	0.17	0.15	0.11 U	0.036 J	1	0.82	1.8	1.7	1.6	1.7	0.285 J	0.3

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

Notes

(1) Sum = Total of detect values in the analyte group

Other

mg/kg = Milligrams per kilogram

ng/kg = Nanograms per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

"-Z1" denotes sample depth 0-6 inches

"-Z2" denotes sample depth 6-12 inches

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

**Table 4-2b Summary for Positive Analytical Data for Phase II Soil Field Blanks,
Eighteen Mile Creek OU3, New York**

Analytes	Sample ID: OU3-RB02-17JUL19	OU3-RB03-18JUL19	OU3-RB01-01OCT19
	Sample Date: 7/17/2019	7/18/2019	10/1/2019
PCB Aroclor (ug/L)			
<i>None Detected</i>			
SVOCs + PAHs (ug/L)			
<i>None Detected</i>			
Metals (ug/L)			
Iron	20 U	22	20 U
Mercury (mg/L)			
<i>None Detected</i>			

Key:

U = Not detected (quantitation limit shown)

Notes

(1) Sum = Total of detect values in the analyte group.

Other

µg/L = Micrograms per liter

mg/L = Milligrams per liter

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

Table 4-3a Summary for Positive Analytical Field Duplicate Data for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek Corridor, New York

Analytes	Sample ID:	OU2-MW16- OCT19	OU2-MW- OCT19-FD	OU2-SW05- OCT19	OU2-SW- OCT19-FD
	Sample Date:	10/2/2019	10/2/2019	10/4/2019	10/4/2019
Metals (ug/L)⁽¹⁾					
<i>None Detected</i>					
VOCs (ug/L)					
<i>None Detected</i>					
Natural Attenuation Parameters					
Dissolved Organic Carbon (mg/L)					
Dissolved Organic Carbon		1.7	2	--	--
Total Organic Carbon (mg/L)					
Total Organic Carbon		1.5	1.4	--	--
Dissolved Gases (ug/L)					
<i>None Detected</i>					
Carbon Dioxide (mg/L)					
Carbon Dioxide		56	60	--	--
Ferrous Iron (mg/L)					
<i>None Detected</i>					
Volatile Fatty Acids (mg/L)					
Acetic Acid		6.1 J	1 UJ	--	--
Lactic Acid		1.1 J	2 UJ	--	--
Anions (Chloride & Sulfate) (mg/L)					
Chloride (As Cl)		1500	1400	--	--
Sulfate (As SO4)		150	150	--	--
Nitrate and Nitrite (mg/L)					
Nitrate [As N]		3.1	3.1	--	--
Sulfide (mg/L)					
<i>None Detected</i>					
Alkalinity (mg/L)					
Alkalinity, Total		400	390	--	--

Key:

J = Estimated value

UJ = Not detected/estimated detection limit

Notes

(1) Samples were filtered in field for analyte

Other

µg/L = Micrograms per liter

mg/L = Milligrams per liter

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

VOC =Volatile Organic Compounds

Table 4-3b Summary for Positive Analytical Data for Phase II Corridor Ground Water and Surface Water, Eighteen Mile Creek Corridor, New York

Analytes	Sample ID:	OU2-RB01-03OCT2019	OU2-TB01-30SEP2019	OU2-TB02-30SEP2019	OU2-TB03-02OCT2019	OU2-TB04-03OCT2019	OU2-TB05-02OCT2019	OU2-TB06-04OCT2019
	Sample Date:	10/3/2019	9/30/2019	9/30/2019	10/2/2019	10/3/2019	10/2/2019	10/4/2019
Metals (ug/L)								
<i>None Detected</i>								
VOCs (ug/L)								
<i>None Detected</i>								
Dissolved Gases (ug/L)								
<i>None Detected</i>								

Key:

µg/L = Micrograms per liter

VOC =Volatile Organic Compounds

**Table 4-4 Summary for Positive Analytical Data for Phase II (July 2019) Sediment,
Eighteen Mile Creek OU3, New York**

Analytes	Reach No.:	04	04
	Zone No.:	Zone 2	Zone 2
	Sample ID:	OU3-P2-SD02-JUL19	OU3-P2-SD-FD-JUL19
	Sample Date:	7/22/2019	7/22/2019
PCB Aroclor (mg/kg)			
PCB-1242 (Aroclor 1242)		0.675 J	0.78
PCB, Total ⁽¹⁾		0.675 J	0.78
SVOCs + PAHs (mg/kg)			
Acenaphthene		0.00225 J	0.0025 J
Acenaphthylene		0.022	0.022
Anthracene		0.016	0.016
Benzo(A)Anthracene		0.191 J	0.36
Benzo(A)Pyrene		0.1365 J	0.25
Benzo(B)Fluoranthene		0.1865 J	0.35
Benzo(G,H,I)Perylene		0.0775 J	0.14
Benzo(K)Fluoranthene		0.0742 J	0.14
Bis(2-Ethylhexyl) Phthalate		0.195 J	0.23 J
Chrysene		0.1875 J	0.34
Dibenz(A,H)Anthracene		0.02405 J	0.044
Dimethyl Phthalate		1.02 J	0.94
Fluoranthene		0.1675 J	0.31
Fluorene		0.00345 J	0.0039 J
Indeno(1,2,3-C,D)Pyrene		0.0694 J	0.13
Naphthalene		0.0041 J	0.01 U
Phenanthrene		0.026 J	0.034
Phenol		0.12 J	1 U
Pyrene		0.1975 J	0.36
PAH Mixtures ⁽¹⁾		1.3644 J	2.5024 J
PAH, Total HMW ⁽¹⁾		1.31165 J	2.424
PAH, Total LMW ⁽¹⁾		0.05275 J	0.0784 J
Pesticides (mg/kg)			
Beta Endosulfan (Endosulfan II)		0.0064 J+	0.0064 J+
Delta BHC (Delta Hexachlorocyclohexane)		0.027 J	0.016 J+
Dieldrin		0.013 J	0.013 J+
P,P'-DDD (4,4'-DDD)		0.011 J+	0.01 UJ

Table 4-4 Summary for Positive Analytical Data for Phase II (July 2019) Sediment, Eighteen Mile Creek OU3, New York

Analytes	Reach No.:	04	04
	Zone No.:	Zone 2	Zone 2
	Sample ID:	OU3-P2-SD02-JUL19	OU3-P2-SD-FD-JUL19
	Sample Date:	7/22/2019	7/22/2019
Metals (mg/kg)			
Antimony		4.7 J	5 J
Arsenic		11.9 J	12.4 J
Barium		270 J	267 J
Cadmium		18.4 J	17.6 J
Chromium, Total		1290 J	1130 J
Cobalt		16 J	18 J
Copper		2025 J	1950 J
Lead		4555 J	4390 J
Manganese		318 J	337 J
Nickel		303 J	341 J
Selenium		1.75 J	1.7 J
Silver		5.05 J	4.8 J
Vanadium		62.2 J	61.5 J
Zinc		15900 J	17100 J
Mercury (mg/kg)			
Mercury		2.6 J	2.6 J
Organic Carbon, Total (mg/kg)			
Total Organic Carbon		92000	100000
Grain Size (% Weight)			
% Gravel		2.5	3.6
% Clay & Colloids		19	19
% Coarse Sand >.5-1 mm		0.11	0.75
% Fine Sand >.125-.25 mm		3.5	2.7
% Medium Sand >.25-5 mm		0.43	1.0
% Silt 0.002-0.05 mm		70	70
% Very Fine Sand >.0625-.125 mm		3.8	2.2

Table 4-4 Summary for Positive Analytical Data for Phase II (July 2019) Sediment, Eighteen Mile Creek OU3, New York

Reach No.:	04	04
Zone No.:	Zone 2	Zone 2
Sample ID:	OU3-P2-SD02-JUL19	OU3-P2-SD-FD-JUL19
Sample Date:	7/22/2019	7/22/2019
Analytes		
Acid Volatile Sulfide / Simultaneously Extracte		
Acid Volatile Sulfide	300	251
Cadmium	0.085	0.096
Chromium	14.5	12.5
Copper	0.064 J	0.097 J
Lead	13.6	15.5
Nickel	2.2	2.1
Zinc	170	207
SEM/AVS Ratio	0.69	0.97
Geotechnical (%)		
Liquid Limit	71.1	74.1
Plastic Limit	61.8	66.1
Plasticity Index	9.3	8.0
Bulk Density Of Soils	27.2	32.9
Moisture, Percent	157.4	129.9

Key:

J = Estimated value

J+ = Estimated value with high bias

U = Not detected (quantitation limit shown)

Other

μmol/g = Micromole per gram

mm = Millimeter

mg/kg = Milligrams per kilogram

-- = Analyte not analyzed for

"-FD" denotes field duplicate sample

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

HMW = High molecular weight

LMW = Low molecular weight

Notes

(1) Sum = Total of detect values in the analyte group.

Table 4-5 Data Completeness Summary Phase IIB, Eighteen Mile Creek OU3, New York

Sample Matrix	Location Type	Method Name	Total Data Points	Rejected Data Points	% Complete	No Qualifer	J	J-	J+	JN	U	UJ	UJ-	UR
SE	SED	Metals	187	0	100%		152					35		
SE	SED	PCB Aroclors	99	0	100%	2	9				50	38		
SE	SED	Pesticides	231	0	100%		8		5		131	87		
SE	SED	SVOC	748	0	100%	36	90				398	224		
SE	SED	Total Organic Carbon	11	0	100%	11								
SO	SO	Metals	4159	0	100%	2763	691	2	1		647	55		
SO	SO	PCB Aroclors	2160	0	100%	139	113	27	8	1	1676	196		
SO	SO	SVOC	16295	1	100%	3116	1278				11628	273		1
TA	BIO	Metals	10	0	100%		3				7			
TA	BIO	PCB Congeners	1303	0	100%	957	27				311	8		
TA	BIO	SVOC	85	0	100%		24				50	11		
WG	MW	Alkalinity	22	0	100%	22								
WG	MW	Anions	44	0	100%	43					1			
WG	MW	Carbon Dioxide	22	0	100%	21					1			
WG	MW	Dissolved Organic Carbon	40	0	100%	40								
WG	MW	Ferrous Iron	20	0	100%		8					12		
WG	MW	MEE	60	0	100%	9		1	1		46		3	
WG	MW	Metals	44	0	100%	20					24			
WG	MW	Nitrogen	40	0	100%	17					23			
WG	MW	Sulfide	22	0	100%	2					20			
WG	MW	Volatile Fatty Acids	220	0	100%	18	23				126	53		
WG	MW	Volatiles	1122	0	100%	13		3			957	1	148	
WS	SW	Dissolved Organic Carbon	12	0	100%	9					3			
WS	SW	Metals	552	0	100%	232		1			319			
WS	SW	PCB Congeners	4025	0	100%	1747	302				1976			
WS	SW	Volatiles	306	0	100%						258	12	36	

Key:

J = Estimated value

J+ = Estimated value with high bias

J- = Estimated value with low bias

JN = Tentively identified compound, interference detected

U = Not detected (quantitation limit shown)

UJ = Not detected/estimated detection limit

Other

SVOC = Semivolatile Organic Compounds

PAH = Polycyclic aromatic hydrocarbon

PCB = Polychlorinated biphenyl

MEE = Dissolved Gases (Methane, Ethene, Ethane)

UJ- = Not detected/estimated detection limit with low bias

UR = Not detected (quantitation limit shown) and unusable

WG = Groundwater

WS = Surface water

SO = Soil

SE = Sediment

TA = Tissue

MW = Groundwater

SW = Surface water

SO = Soil

SED = Sediment

BIO = Tissue

Table 5-1 Summary of Co-located Samples of Floodplain Soil and Earthworms Data for Phase II (July 2019), Eighteen Mile Creek OU3, New York.

Location ^a	Sample Depth ^b (inches)	Copper (mg/kg dry)		Lead (mg/kg dry)		Chromium (mg/kg dry)		Nickel (mg/kg dry)		Selenium (mg/kg dry)		Vanadium (mg/kg dry)		Soil ^c		Earthworm ^d		
														Total PCB Aroclors ^e (mg/kg dry)	TOC (mg/kg dry)	Total PCB Congeners ^f (mg/kg dry)	% Lipids	% Moisture
		Soil ^c	EW ^d	Soil ^c	EW ^d	Soil ^c	EW ^d	Soil ^c	EW ^d	Soil ^c	EW ^d	Soil ^c	EW ^d					
OU3-R6-T09E-S01	0 - 6	246	64.96	325	78.21	83.3	17.95	49.6	11.11	0.68 J	9.402	15.1	5.556	1.11	31,000	18.205 J	1.85	76.6
	6 - 12	141		201		36.7		25.3		0.44 J		12.1		1.12	21,000			
OU3-R6-T09E-S02	0 - 6	204	48.75	301	33.75	73.2	9.375	45.6	6.25	0.67 J	12.5	17.3	3.813	0.81	38,000	5.224 J	0.87	84.0
	6 - 12	236		355		78		46.4		0.57 J		17.2		0.8	37,000			
OU3-R6-T09E-S03	0 - 6	42.7	30.19	81	32.08	24.7	10.38	18.6	7.547	0.57 J	13.68	16.2	8.019	0.048 U	32,000	0.860 J	1.06	78.8
	6 - 12	31.3		64.5		21		17.6		0.3 J		18.2		0.041 U	9,500			
OU3-R6-T09E-S04	0 - 6	12.4	21.43	14.3	4.048	11.9	2.81	11.5	2.714	0.69 J	13.81	13.3	3.905	0.048 U	30,000	0.026	0.76	79.0
	6 - 12	9.3		12.8		11.9		11.2		0.56 J		13.3		0.045 U	22,000			
OU3-R7-T10W-S01	0 - 6	138	30.48	251	15.51	51.2	3.209	34.5	2.727	0.42 J	6.417	17.9	1.23	18.6	34,000	35.022 J	1.27	81.3
	6 - 12	148		188		51.1		35.2		0.32 J		14.4		8.2	23,000			
OU3-R7-T12E-S01	0 - 6	297	101.8	377	101.8	112	19.88	62	13.45	1.2 J	12.87	20.9	5.263	0.113 J	72,000	4.908 J	2.5	82.9
	6 - 12	356		452		124		67.1		1.3 J		21.3		0.042 J	71,000			
OU3-R7-T12E-S02	0 - 6	267 J	41.82	372 J	38.79	91.7 J	7.879	52.2 J	4.909	1.3 J	6.061	20.6 J	2.606	0.018 J-	77,000	1.594 J	1.6	83.5
	6 - 12	242		446		98.4		56.4		0.67 J		20.5		0.0092 J	43,000			
OU3-R7-T12E-S03	0 - 6	869.5 J	214.9	1289.5 J	280.5	2445 J	423.6	638.5 J	99.49	1.1 J	3.949	372 J	64.1	2.24 J	80,000	6.328 J	1.41	80.5
	6 - 12	1650		2420		4530		1180		1.1 J		652		4.45	84,000			

Key:

BERA = baseline ecological risk assessment

mg/kg = milligrams per kilogram

EW = earthworm

OU3 = Operable Unit 3

PCB = polychlorinated biphenyl

TOC = total organic carbon

Notes:

a = Colocated soil and earthworm composite samples were collected from OU3 along Transects 9, 10, and 12 in July 2019. See sample locations in Figure G-1.

b = Soil samples were analyzed separately for 0 to 6 and 6 to 12 inches below ground surface. Earthworms were composited from 0 to 12 inches below ground surface.

c = Soil was analyzed for PCB Aroclors (1016, 1221, 1232, 1242, 1248, 1254, 1260, 1262, and 1268), metals, and TOC.

d = Earthworm composite samples were analyzed for PCB congeners, lipids, and moisture content.

e = Sum of detected Aroclors. If all Aroclors were non-detect, the lowest Aroclor method detection limit is listed as the sample result.

f = Sum of detected congeners.

Table 5-2 Summary of Emergent Aquatic Insect Sample Data (wet weight) for Phase II (July 2019), Eighteen Mile Creek OU3, New York

Zone and Sample Location	Units	PCB Congener Sum ^a (ND = 0)	PCB Congener Sum ^a (ND = 0.5DL)	HPAH Sum ^b (ND = 0)	HPAH Sum ^b (ND = 0.5DL)	Barium	Copper	Lead	Selenium	Vanadium	Lipids (%)	Moisture Content (%)
Zone 1 -- Downstream from Burt Dam												
OU3-P1-EA01/EA02	mg/kg	0.784 J	0.786 J	--	--	1	12.5	0.14	1.4	0.1 U	--	47.3
OU3-P1-EA03	mg/kg	0.795 J	0.796 J	--	--	0.98	12.7	0.11	1.4	0.11 U	--	--
Zone 2 -- Between Burt Dam and Newfane Dam												
OU3-P2-EA01	mg/kg	0.415 J	0.418 J	0.0146	0.032	0.75	6.3	0.089 J	0.67	0.1 U	4.9	70.3
OU3-P2-EA02	mg/kg	0.425 J	0.428 J	0.0145 J	0.032 J	0.74	7.6	0.11	0.92	0.1 U	3.7	72.5
OU3-P2-EA03	mg/kg	0.425 J	0.428 J	0.0121 J	0.030 J	0.62	7.4	0.075 J	0.98	0.11 U	3.4	73.8
Zone 3 -- Upstream from Newfane Dam												
OU3-P3-EA01	mg/kg	1.382 J	1.383 J	0.0296 J	0.041 J	3.3	9.4	0.28	0.68	0.11 U	5.9	68.1
OU3-P3-EA02	mg/kg	1.881 J	1.882 J	0.0344 J	0.047 J	1.1	8.6	0.19	1	0.11 U	5.1	69.7
OU3-P3-EA03	mg/kg	2.267 J	2.268 J	0.0401 J	0.224 J	1.1	11.9	1.1	1.3	0.064 J	7.3	57.7

Key:

DL = detection limit

HPAH = high molecular weight PAH

MDL = method detection limit

ND = non-detect

OU3 = Operable Unit 3

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyls

Notes:

a = Sum of PCB congeners with non-detects (U-qualified results) set equal to 0 (ND = 0) or one-half the reported MDL (ND = 0.5DL).

b = Sum of HPAHs (benzo(a)anthracene, total benzofluoranthenes, benzo(a)pyrene, benzo(g,h,i)perylene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, and pyrene) with non-detects (U-qualified results) set equal to 0 (ND = 0) or one-half the reported MDL (ND = 0.5DL).

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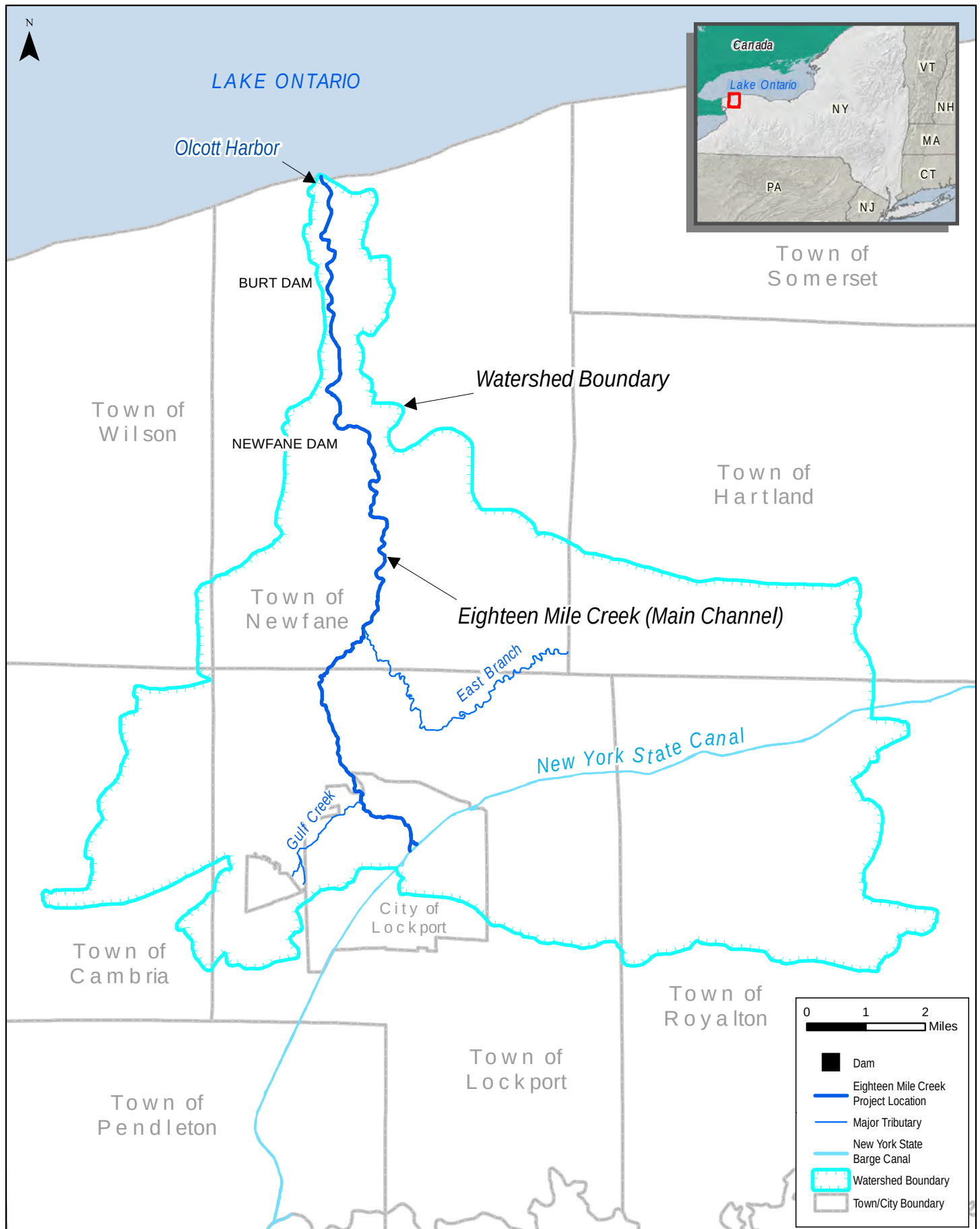


Figure 1-1 Site Location Map
Eighteen Mile Creek Superfund Site
Niagara County, New York

Figure 1-2 Operable Unit Overview, Eighteen Mile Creek Superfund Site

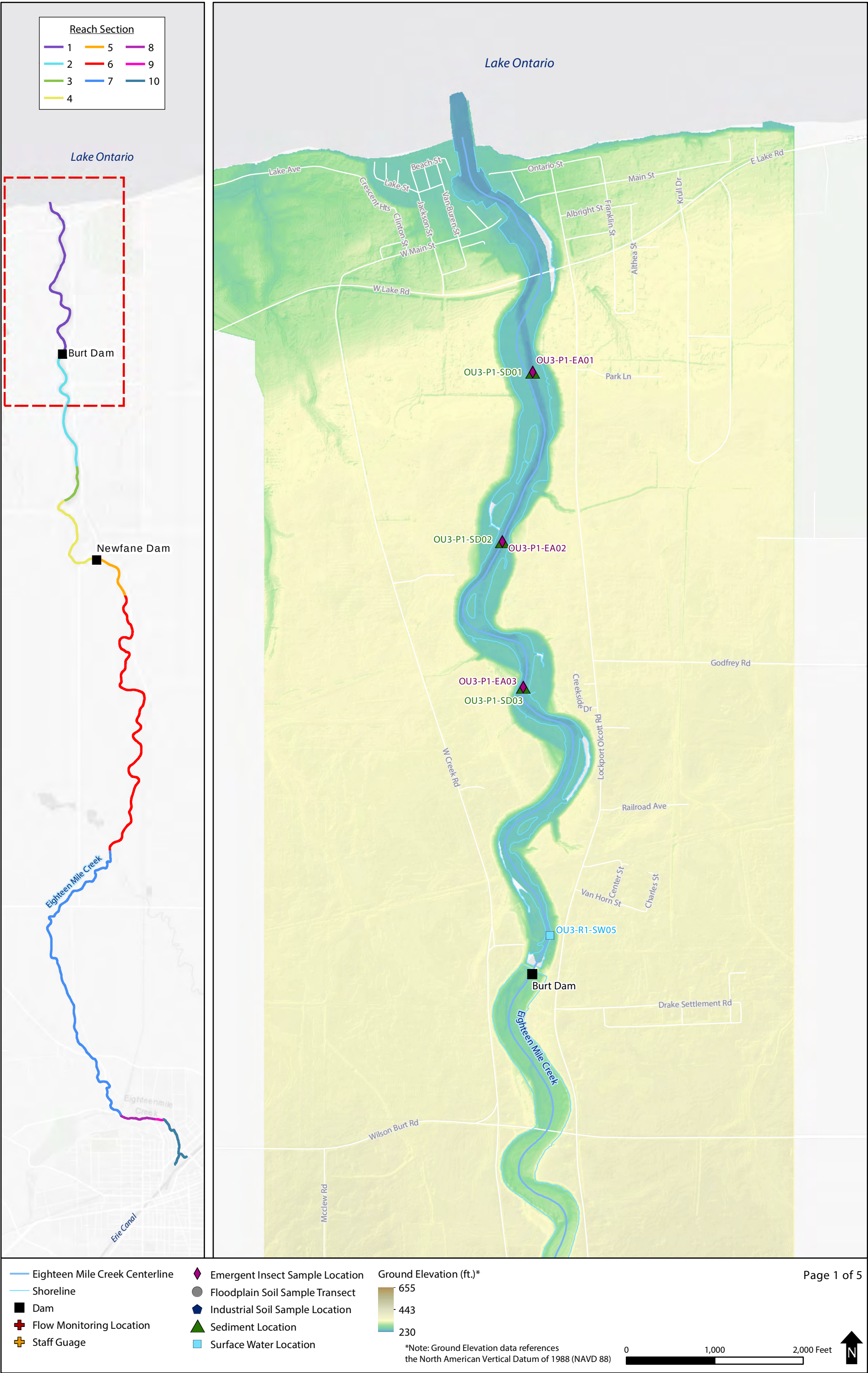


Figure 2-1 Phase II Surface Water, Soil, Sediment, and Emergent Insect Sampling Locations Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018.

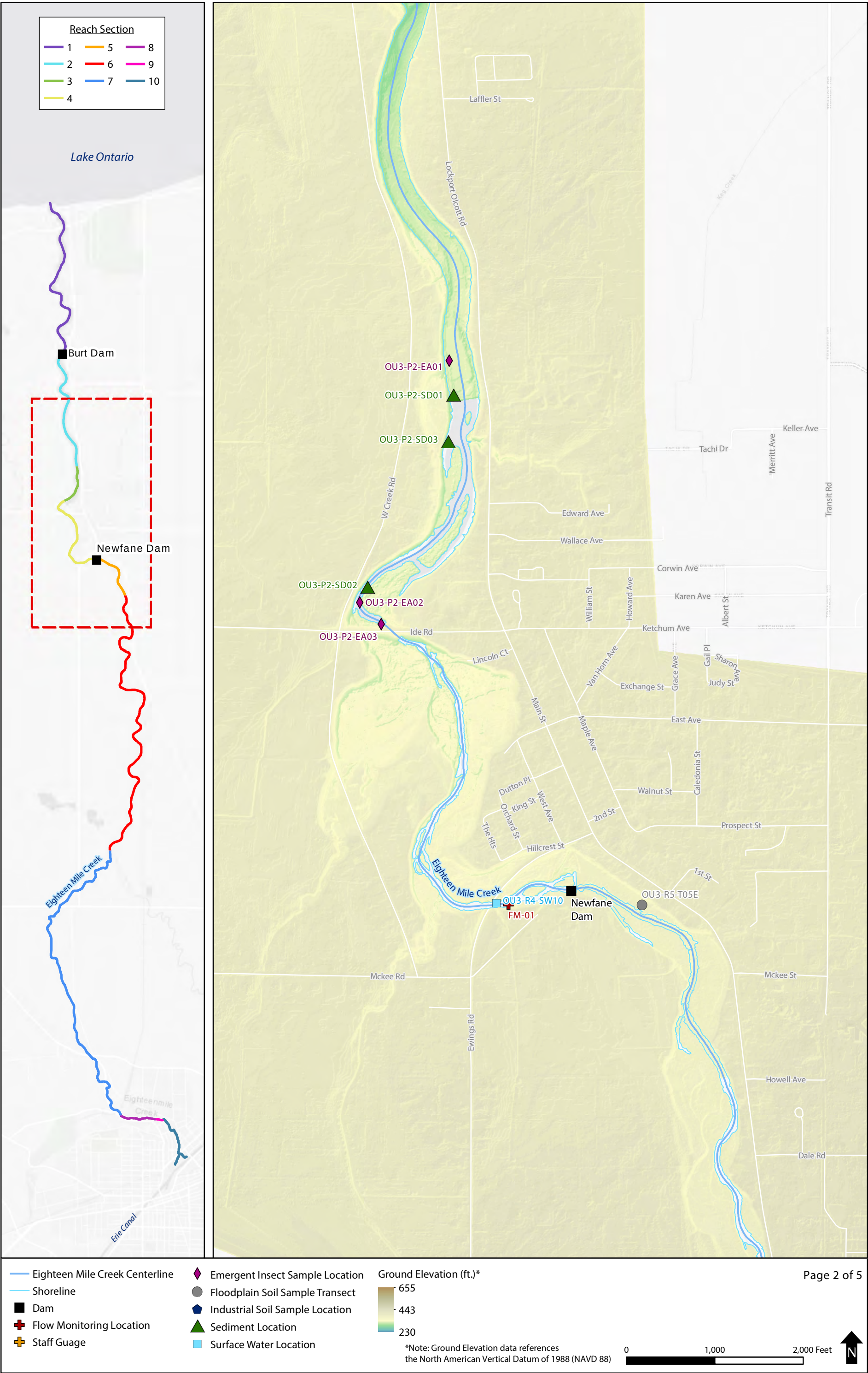


Figure 2-1 Phase II Surface Water, Soil, Sediment, and Emergent Insect Sampling Locations Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018.

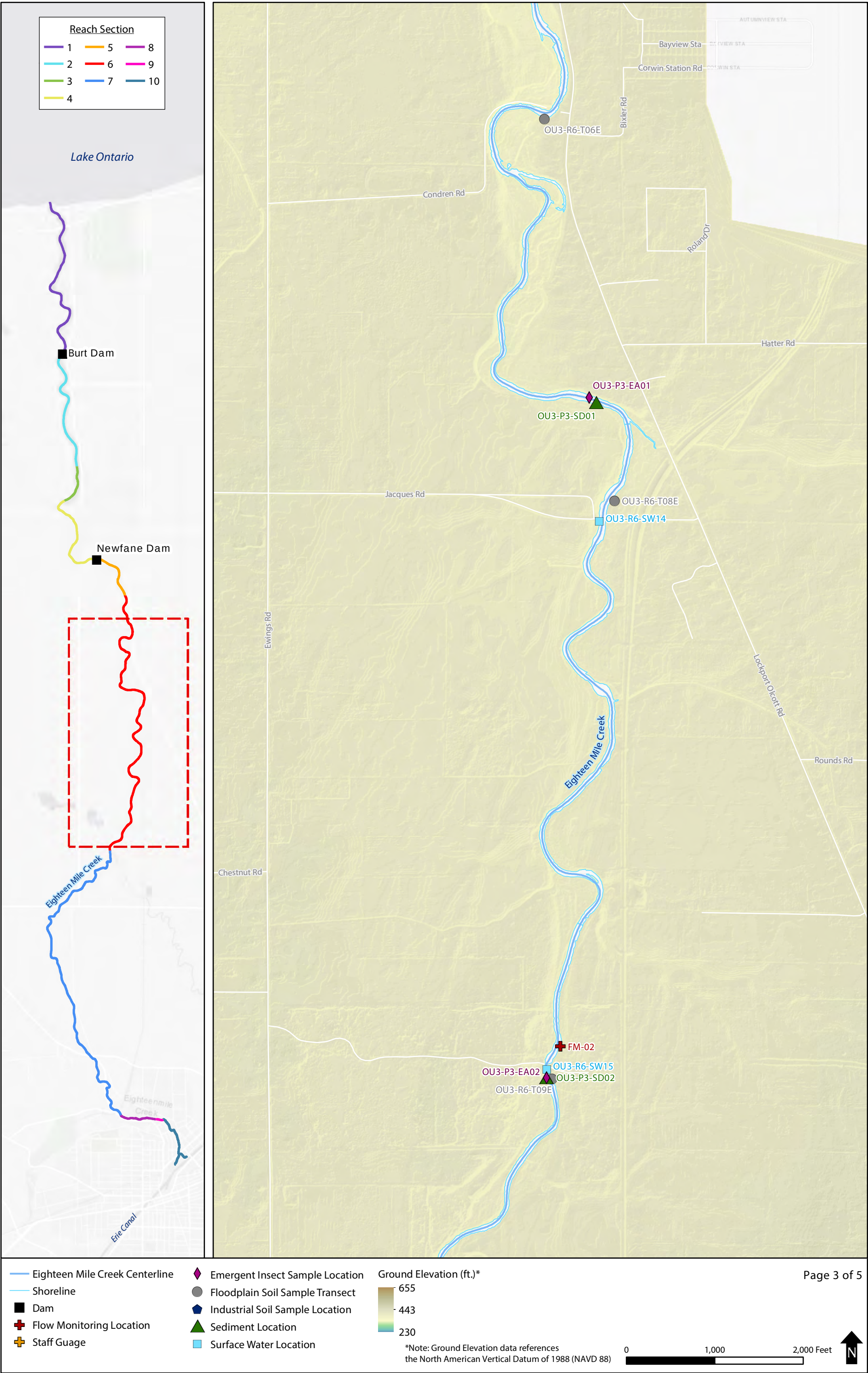


Figure 2-1 Phase II Surface Water, Soil, Sediment, and Emergent Insect Sampling Locations Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018.

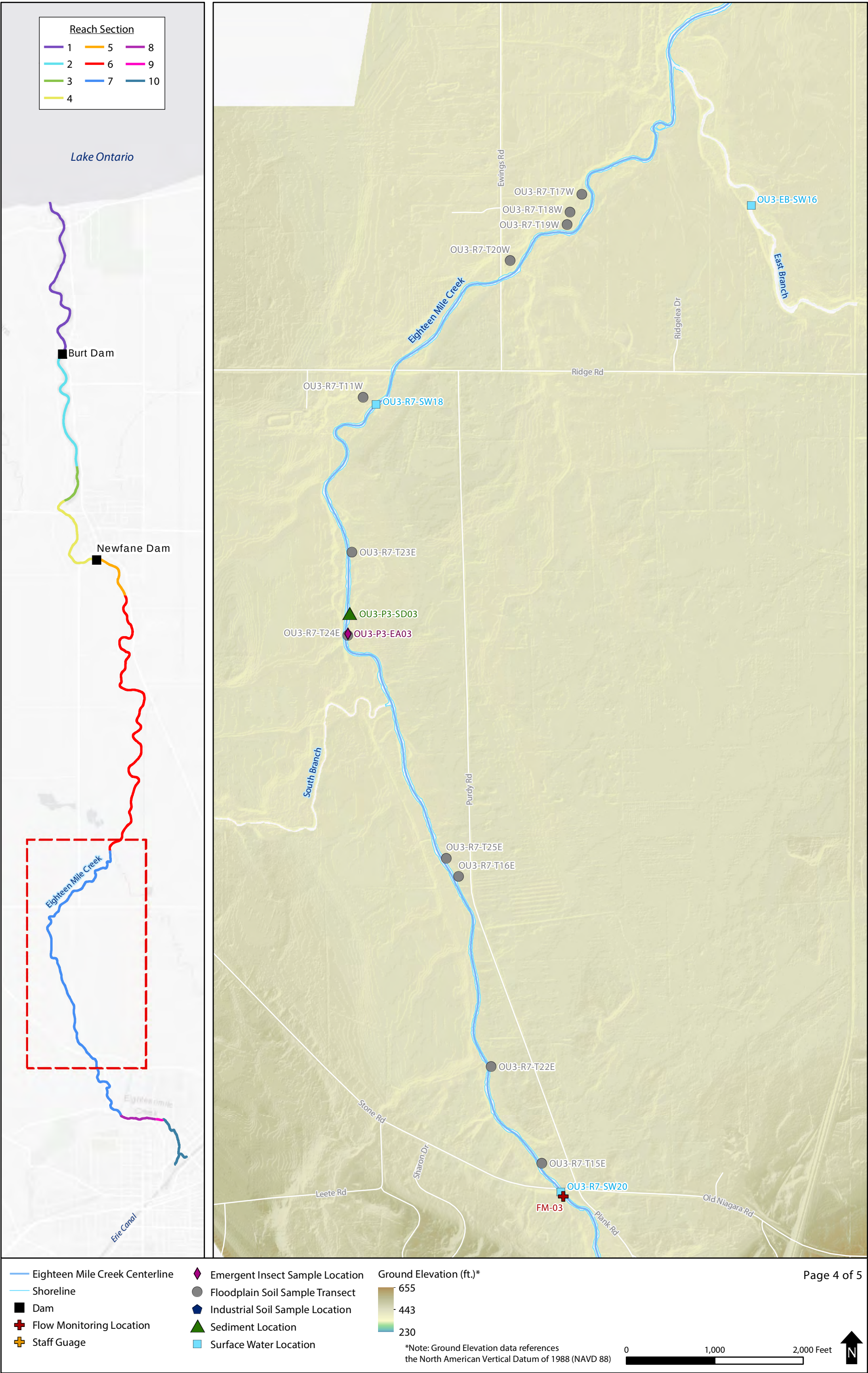


Figure 2-1 Phase II Surface Water, Soil, Sediment, and Emergent Insect Sampling Locations Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018.

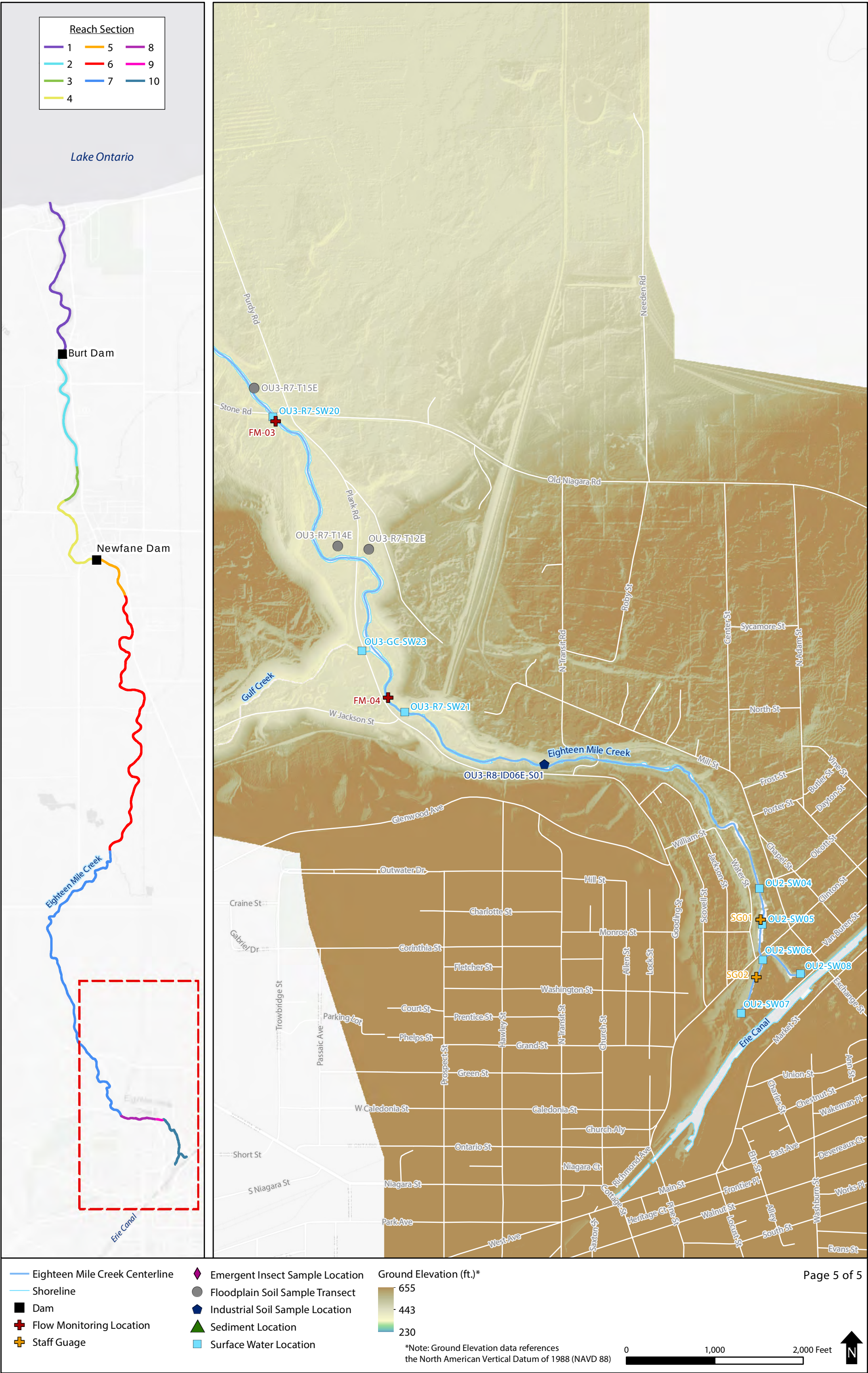


Figure 2-1 Phase II Surface Water, Soil, Sediment, and Emergent Insect Sampling Locations Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018.

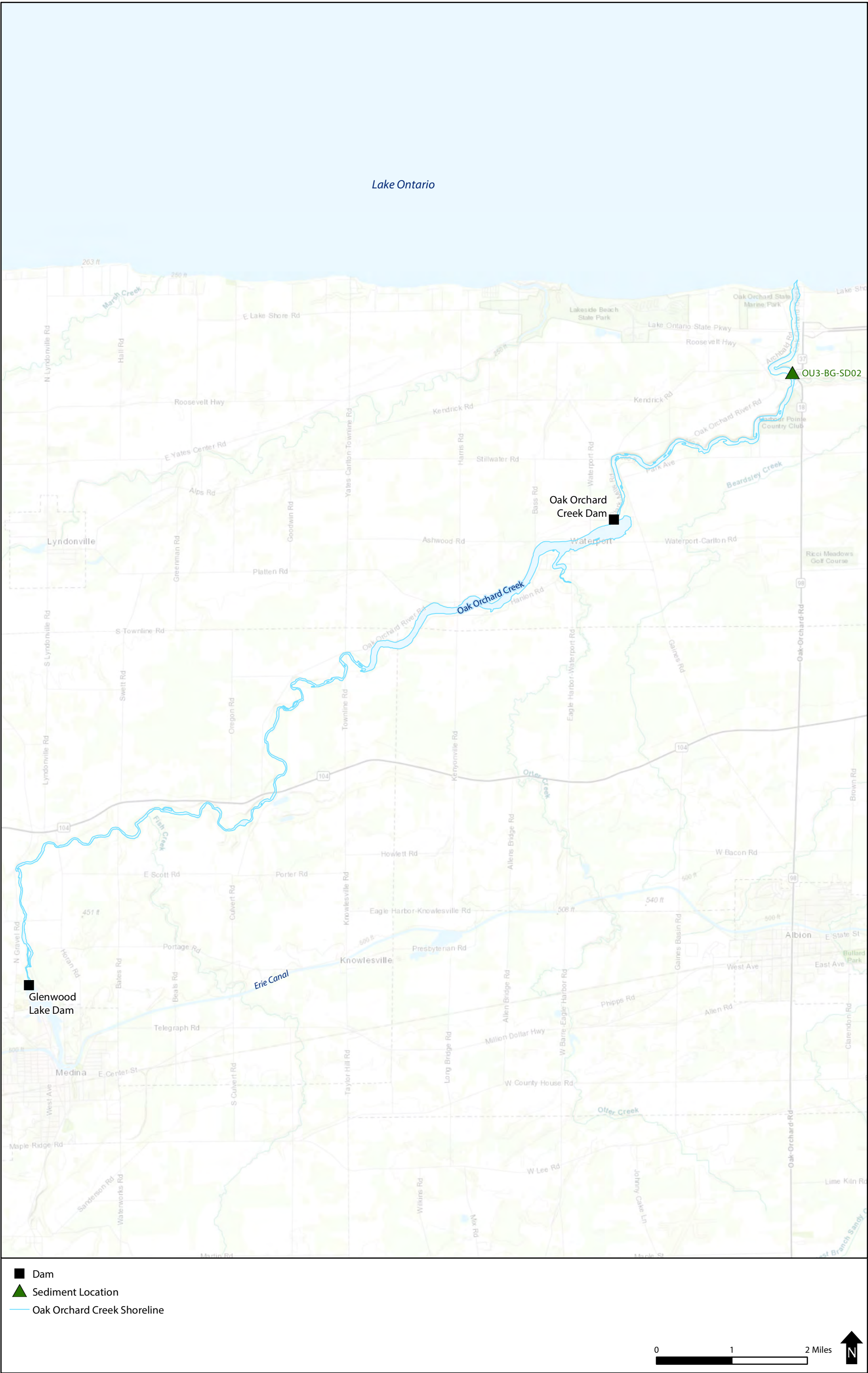


Figure 2-2 Background Sample Locations for
Sediment Eighteen Mile Creek OU3 RI

Data Source: Ecology and Environment, Inc. 2019; ESRI 2017; USGS 2018.

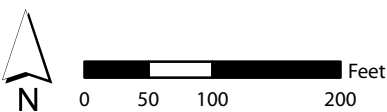
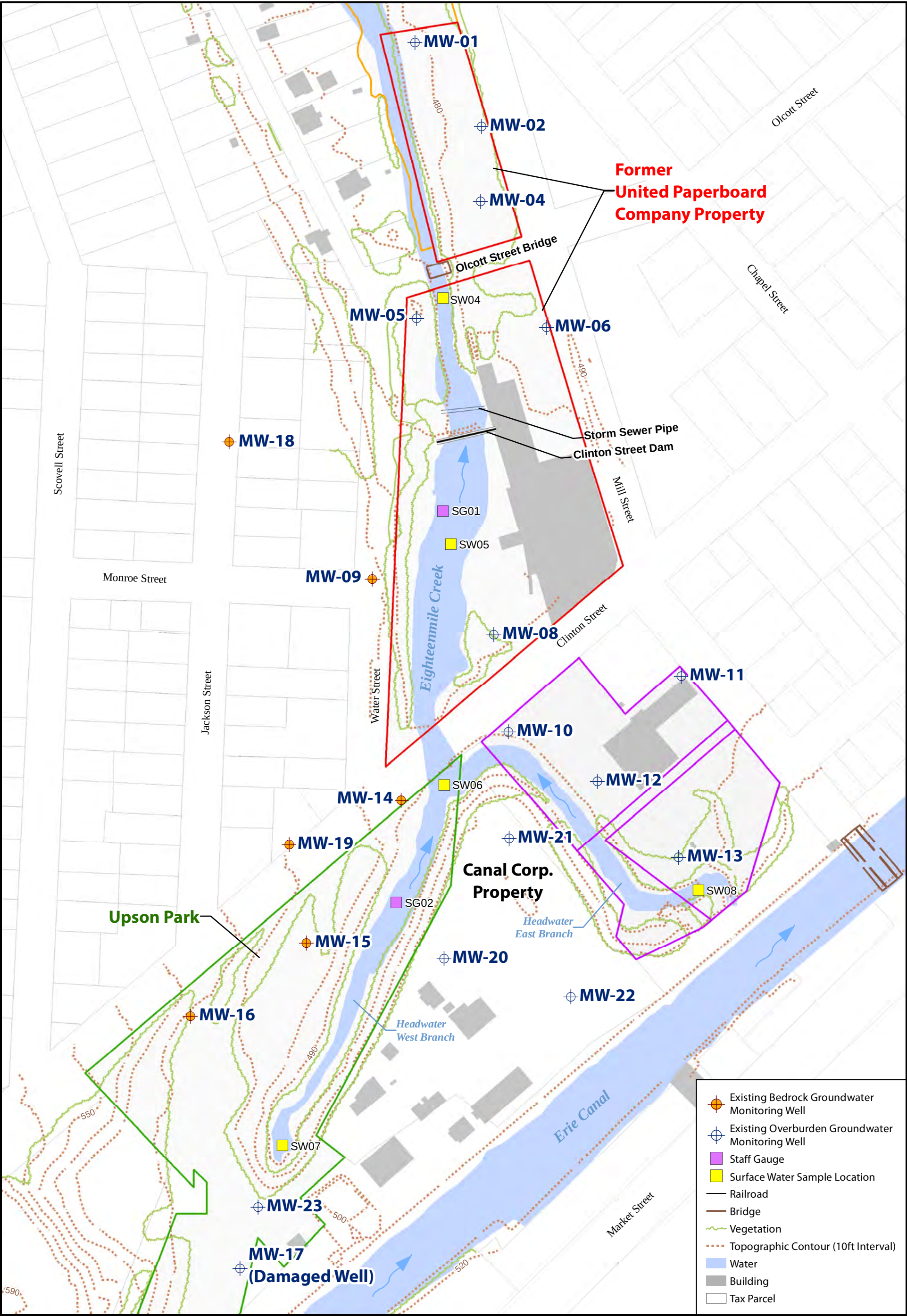


Figure 5-1a Total PCB Congeners, Surface Water
Phase I and II

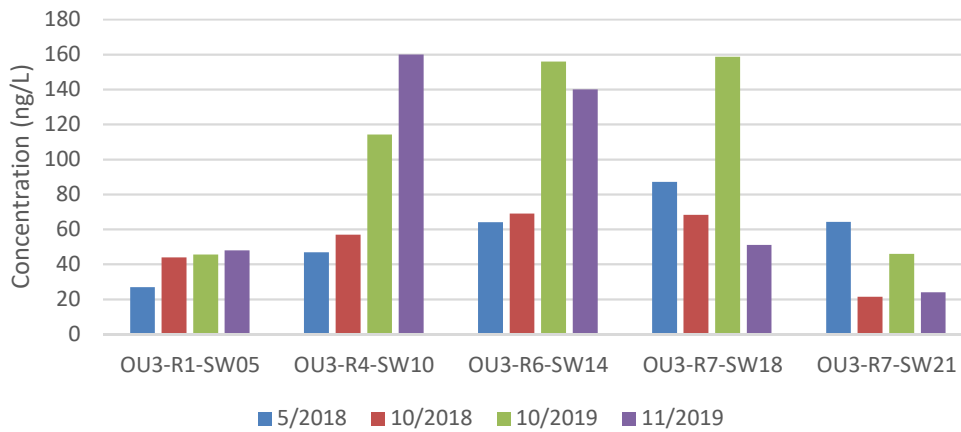


Figure 5-1b Lead, Surface Water
Phase I and II

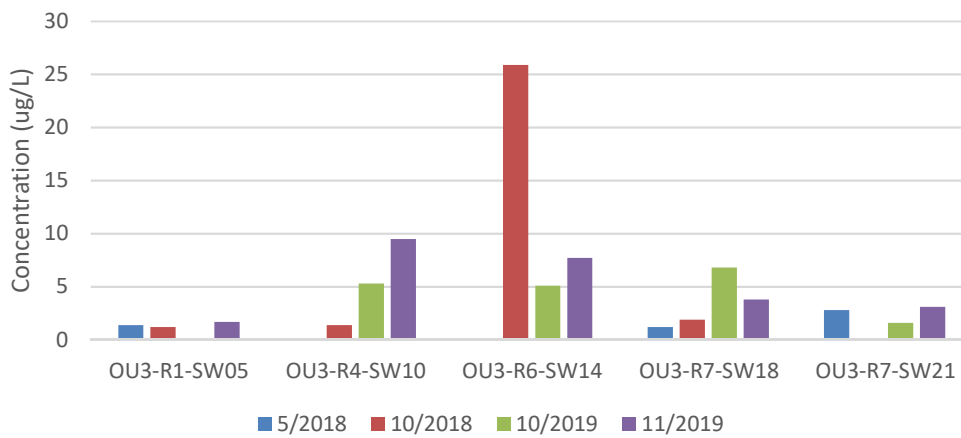
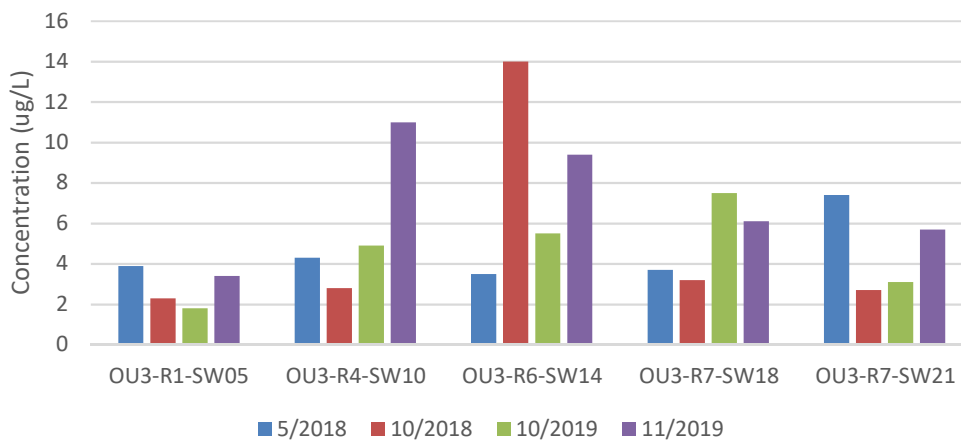
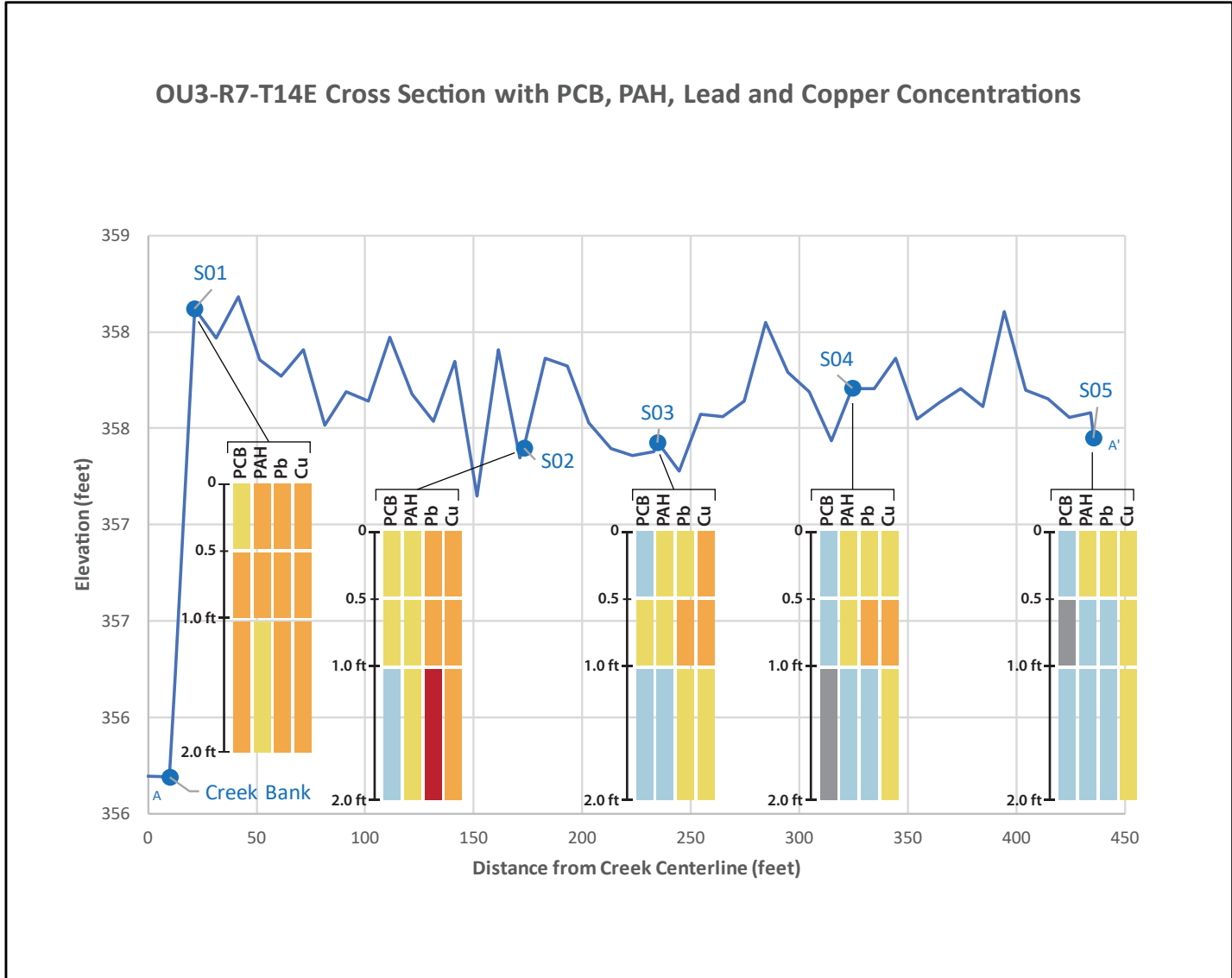
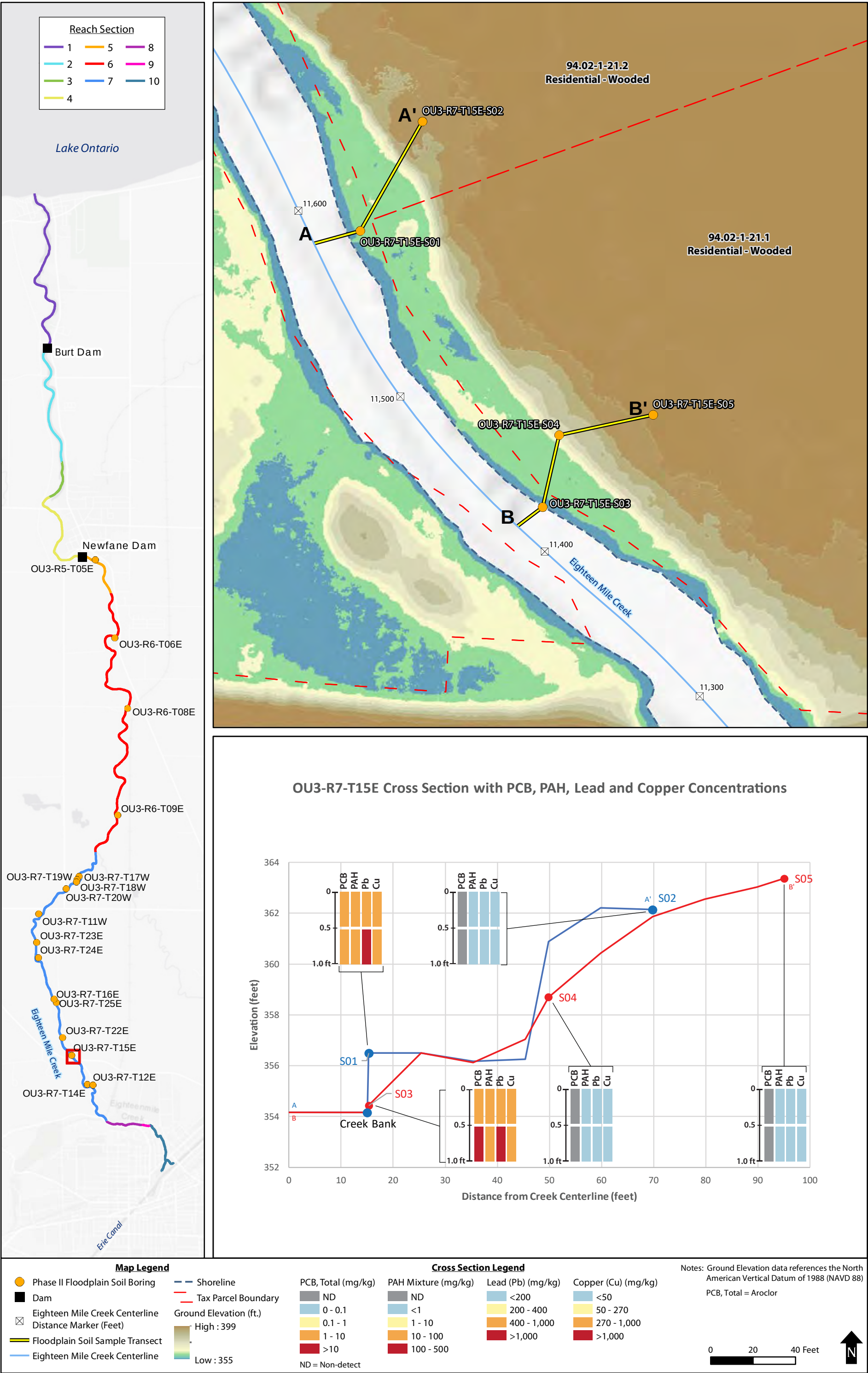


Figure 5-1c Copper, Surface Water
Phase I and II

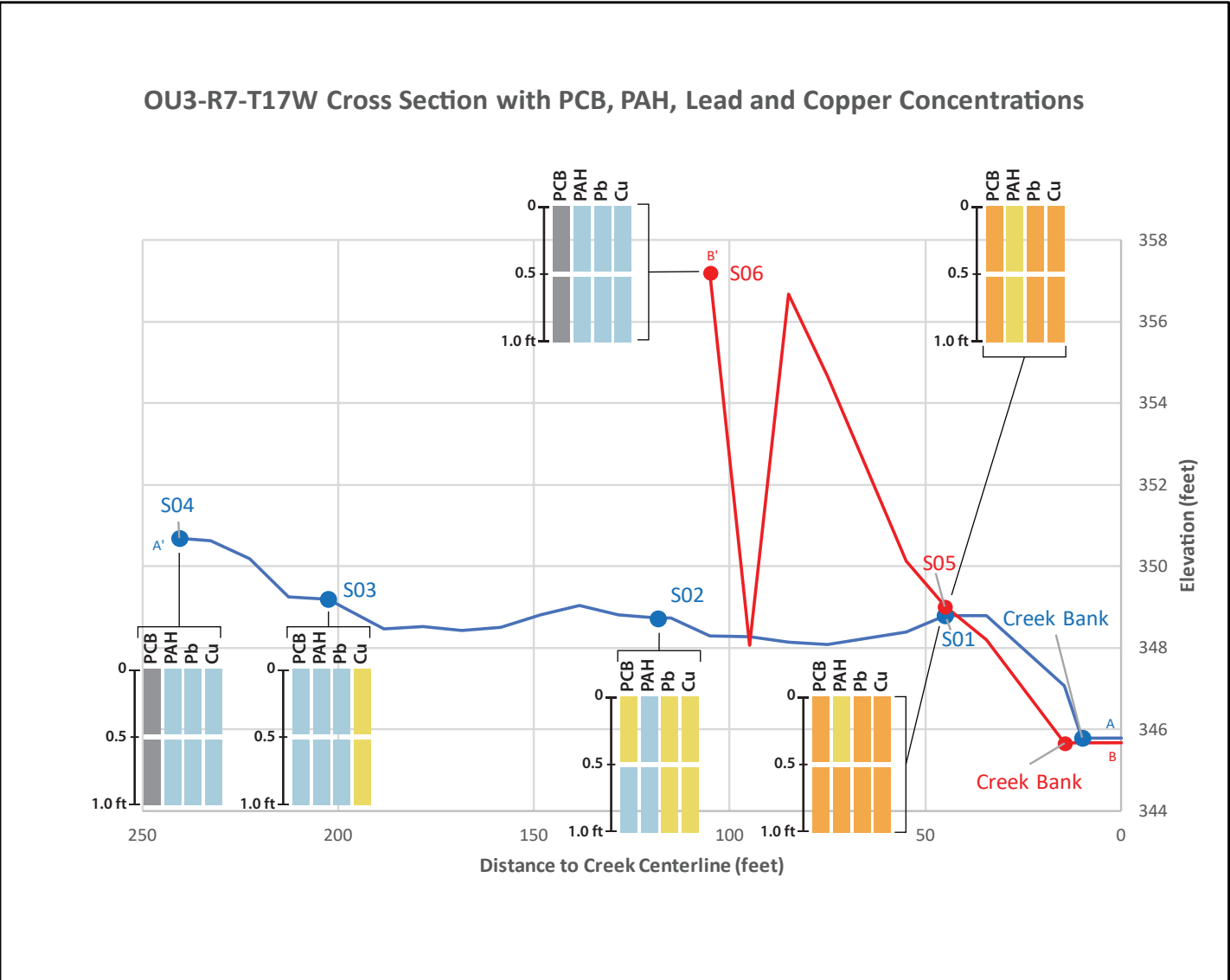
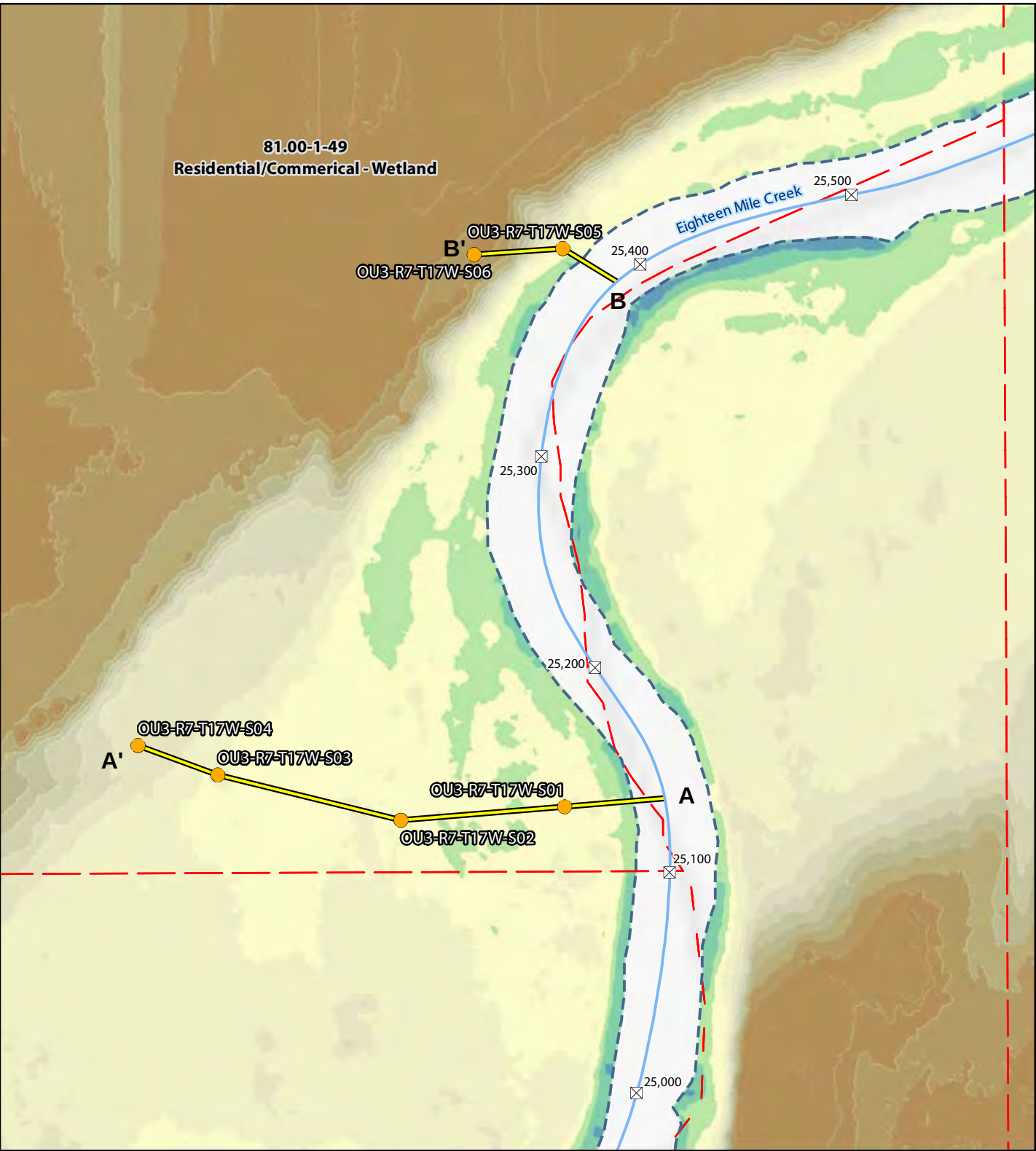




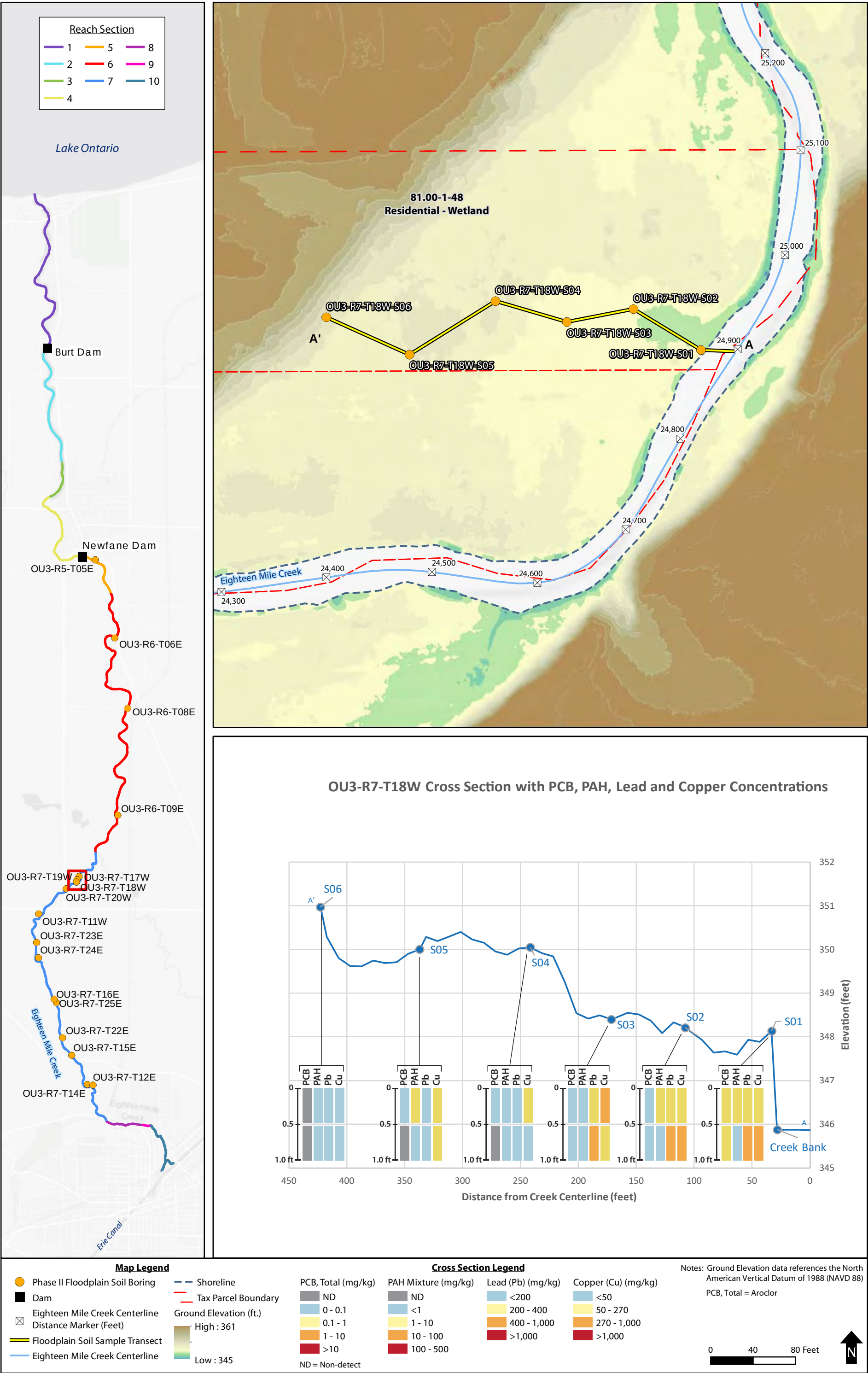
Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.

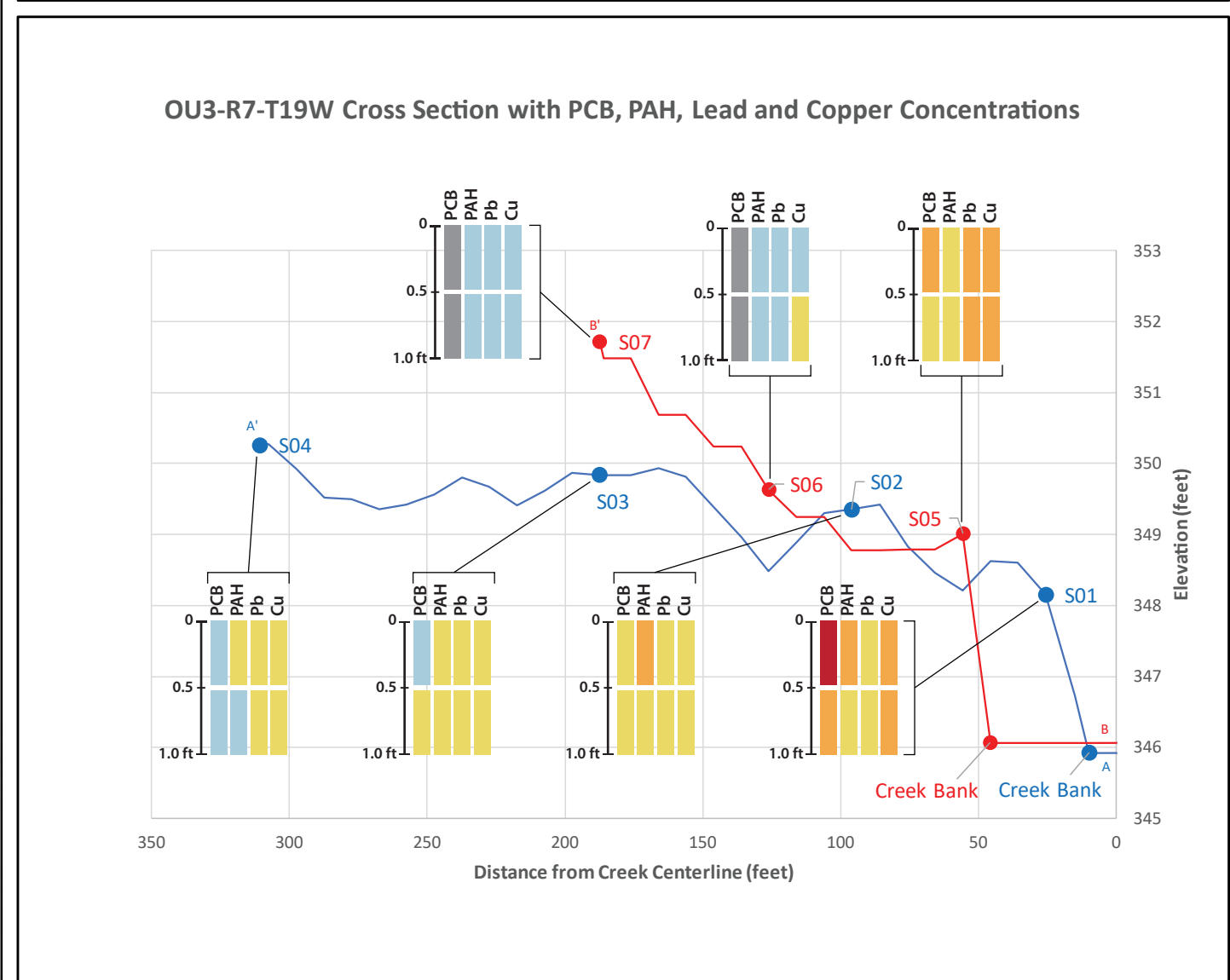
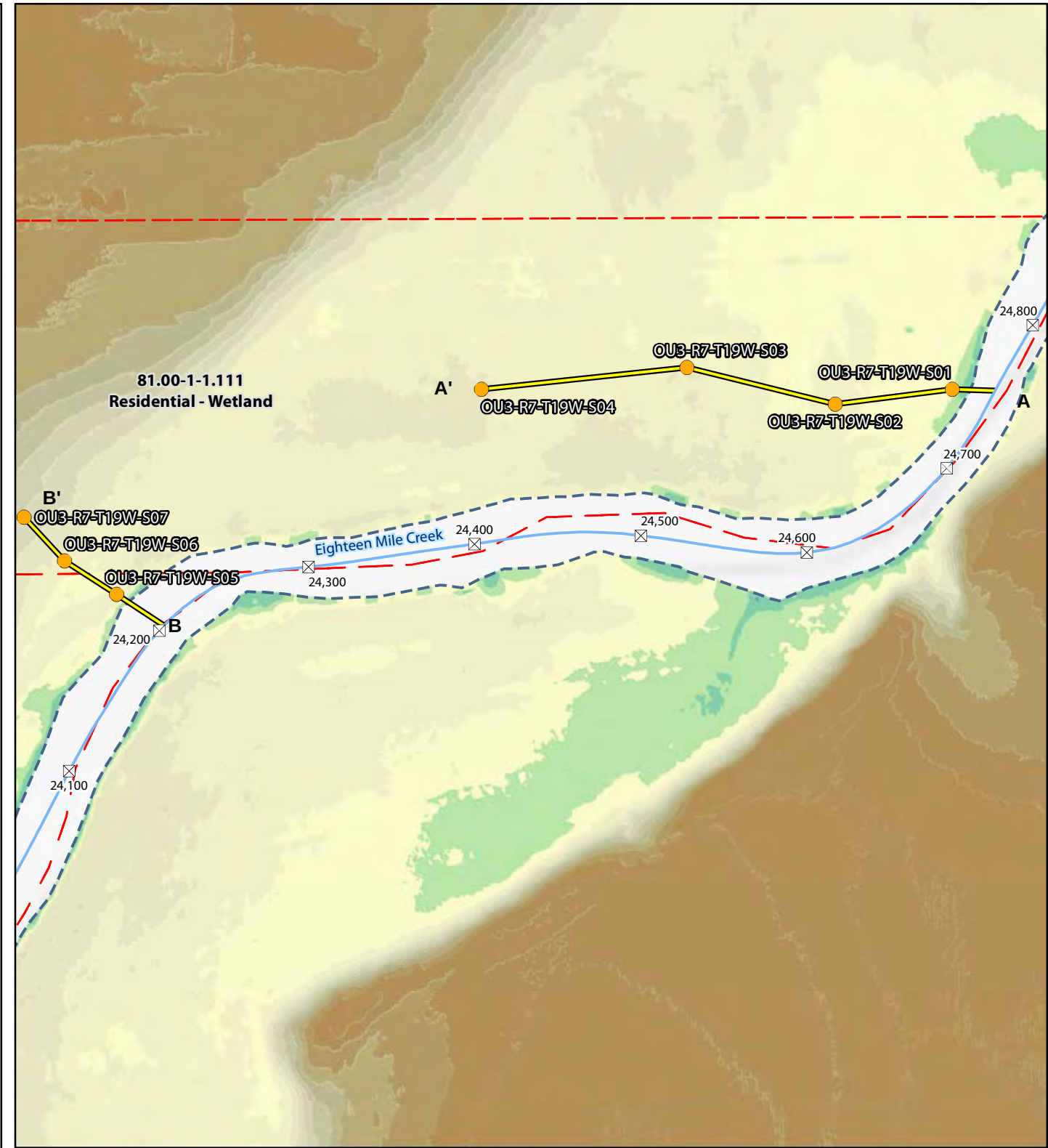




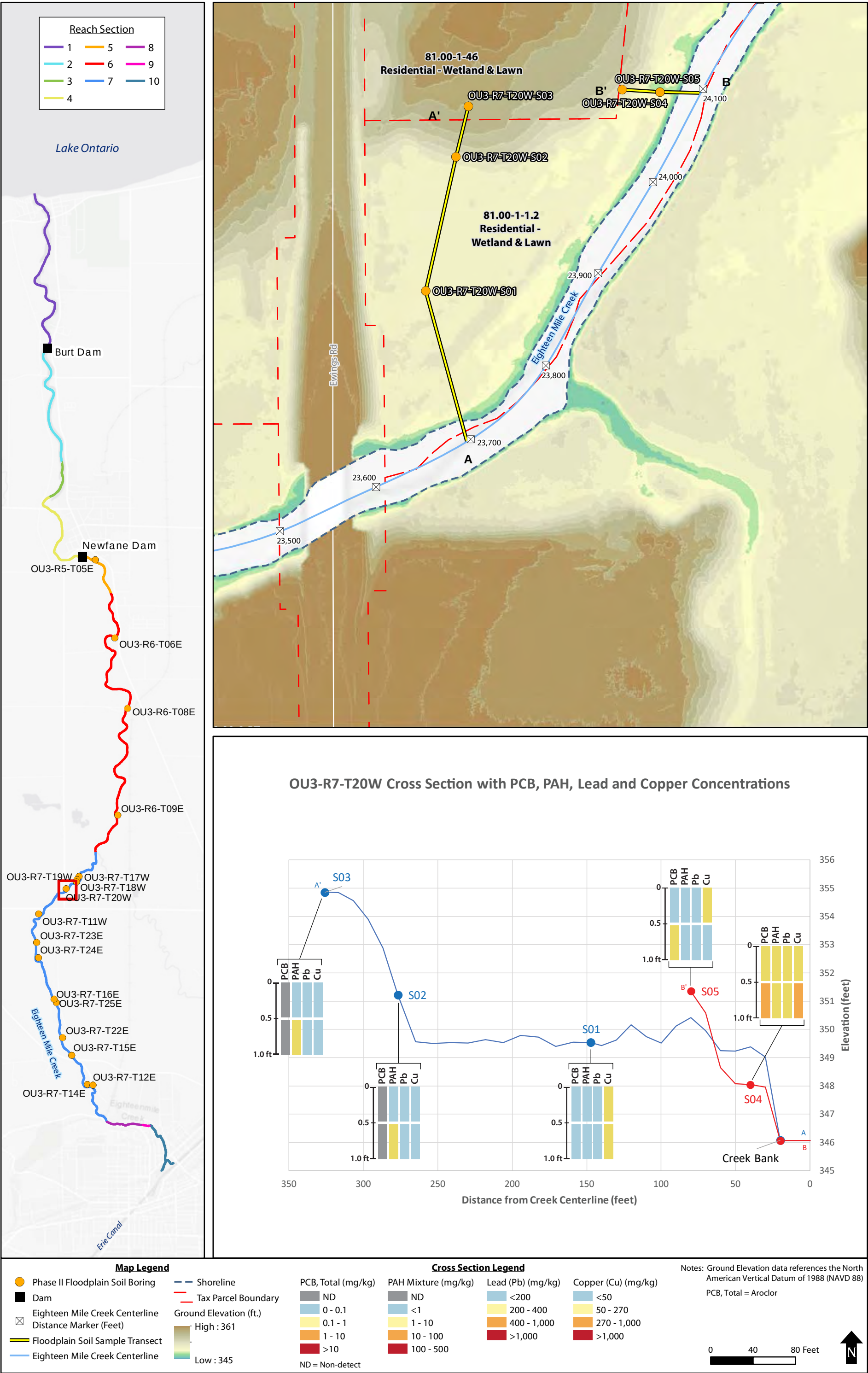


Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.

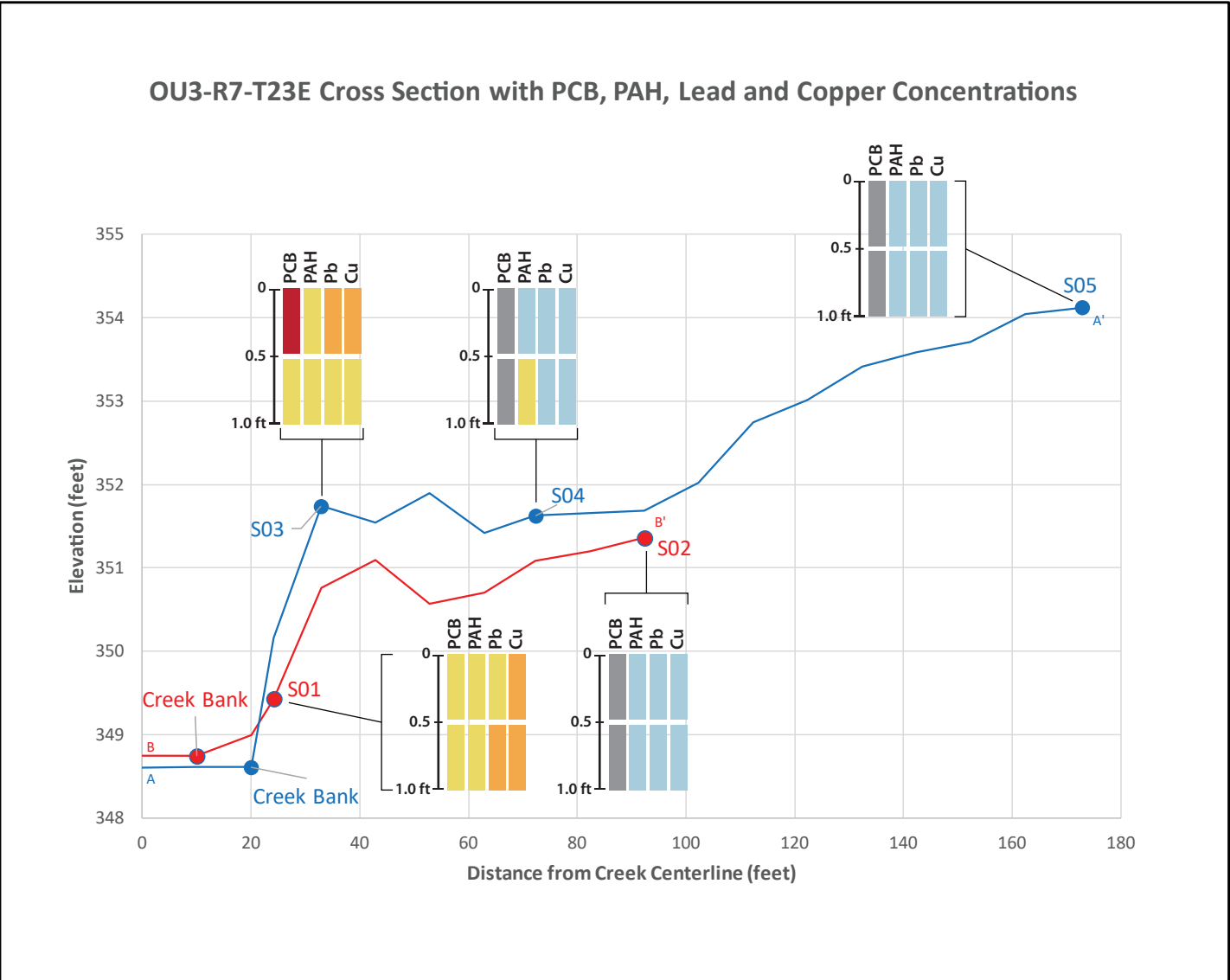
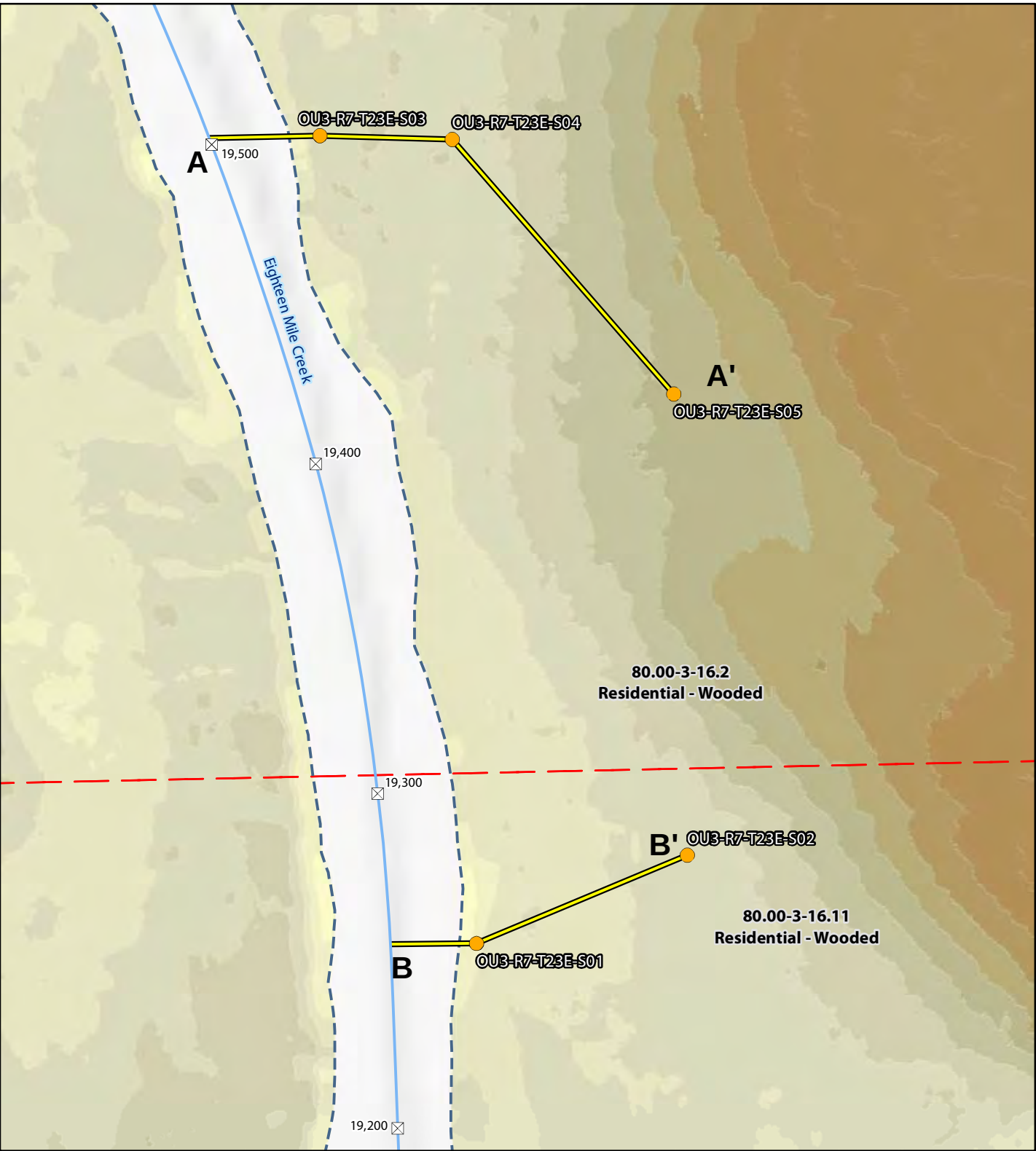




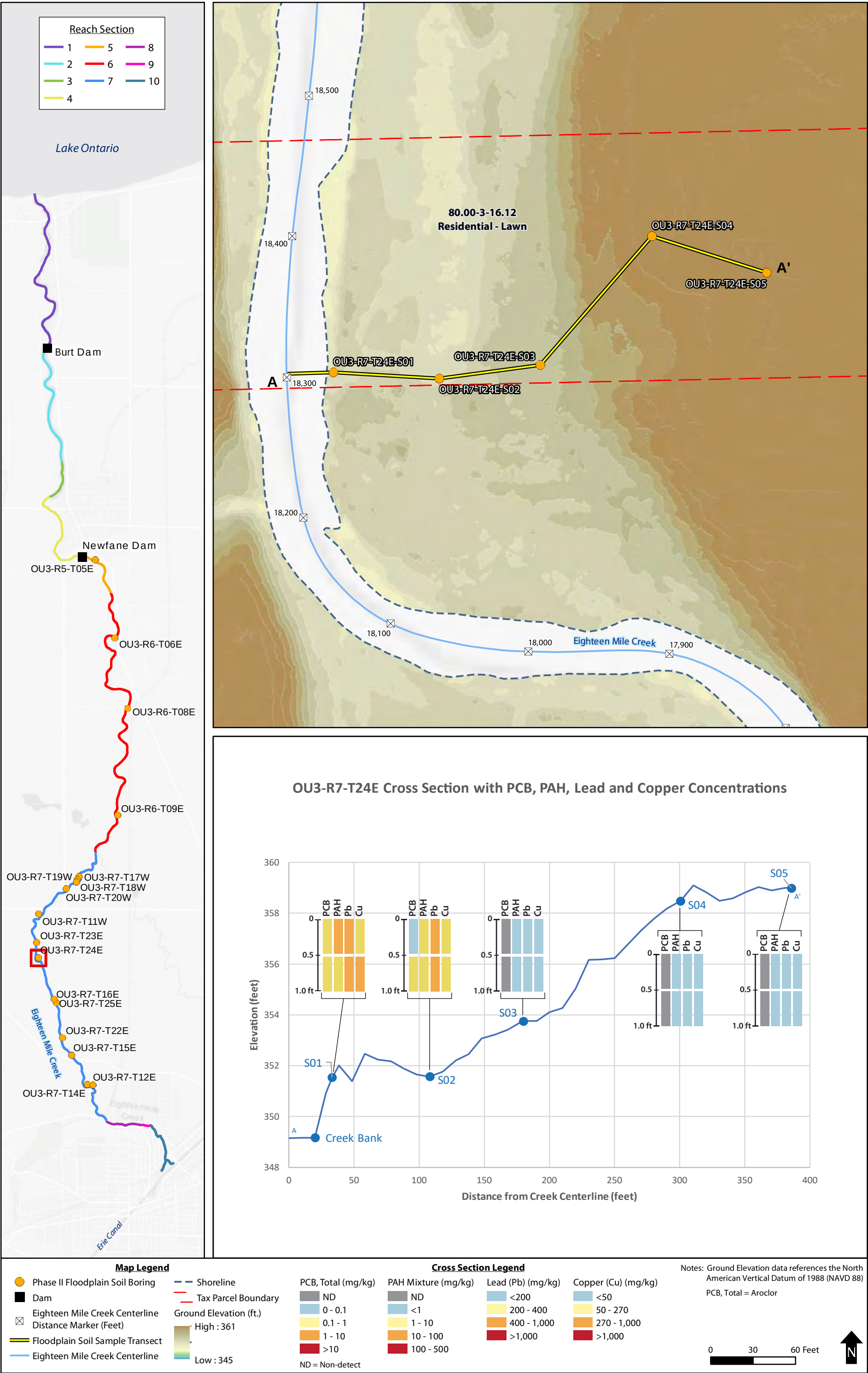
Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.







Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.



OU3-R7-T24E Cross Section with PCB, PAH, Lead and Copper Concentrations

Elevation (feet)

360

358

356

354

352

350

348

0

50

100

150

200

250

300

350

400

Distance from Creek Centerline (feet)

PCB

PAH

Pb

Cu

0

0.5

1.0 ft

PCB

PAH

Pb

Cu

0

0.5

1.0 ft

PCB

PAH

Pb

Cu

0

0.5

1.0 ft

PCB

PAH

Pb

Cu

0

0.5

1.0 ft

PCB

PAH

Pb

Cu

0

0.5

1.0 ft

S01

S02

S03

S04

S05

A

A'

Creek Bank

Map Legend

Phase II Floodplain Soil Boring

Dam

Eighteen Mile Creek Centerline

Distance Marker (Feet)

Floodplain Soil Sample Transect

Eighteen Mile Creek Centerline

Shoreline

Tax Parcel Boundary

Ground Elevation (ft.)

High : 361

Low : 345

Cross Section Legend

PCB, Total (mg/kg)

PAH Mixture (mg/kg)

Lead (Pb) (mg/kg)

Copper (Cu) (mg/kg)

ND

0 - 0.1

0.1 - 1

1 - 10

>10

ND

<1

1 - 10

10 - 100

100 - 500

ND

<200

200 - 400

400 - 1,000

>1,000

<50

50 - 270

270 - 1,000

>1,000

ND = Non-detect

Notes: Ground Elevation data references the North American Vertical Datum of 1988 (NAVD 88)

PCB, Total = Aroclor

0

30

60 Feet

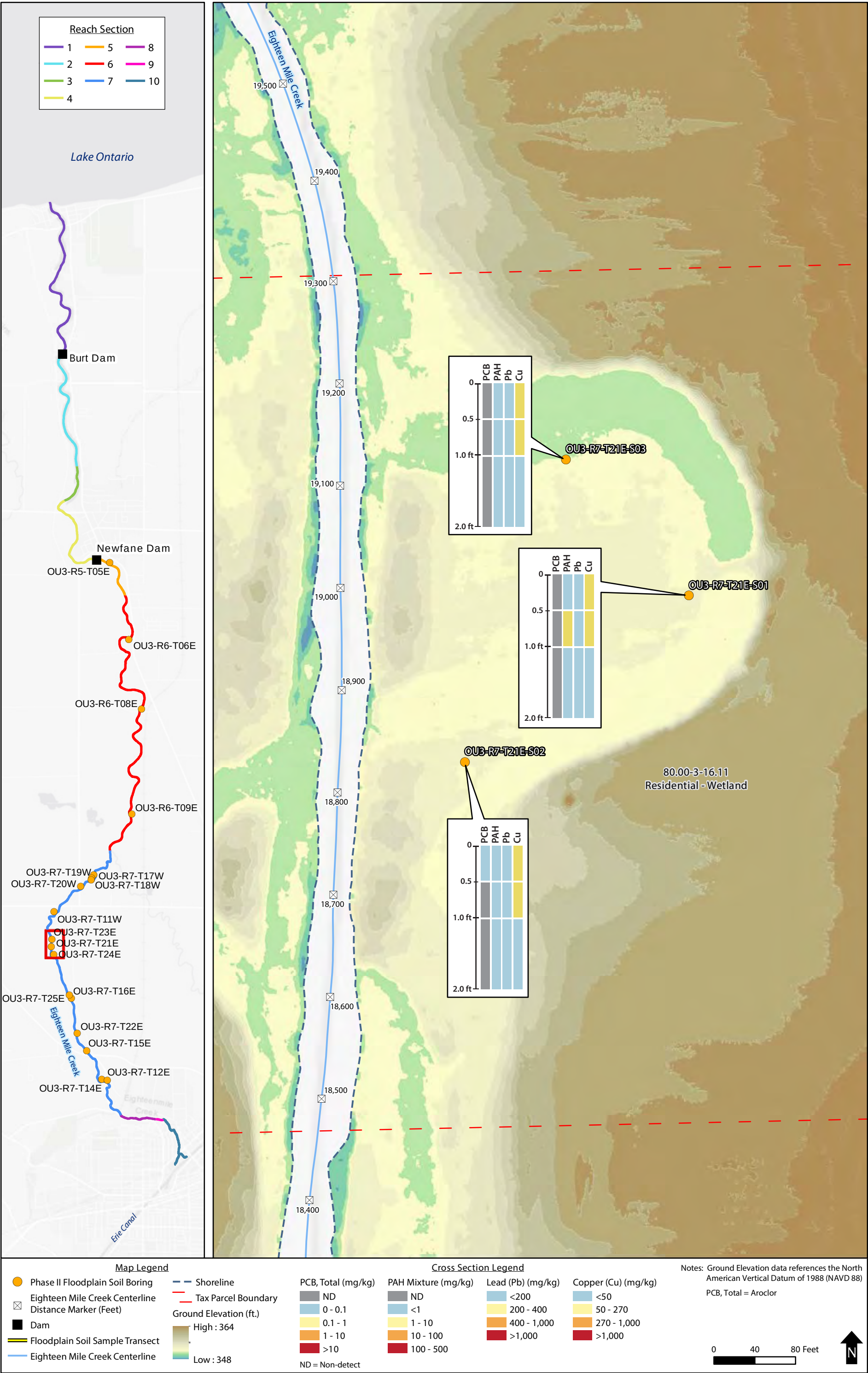
N

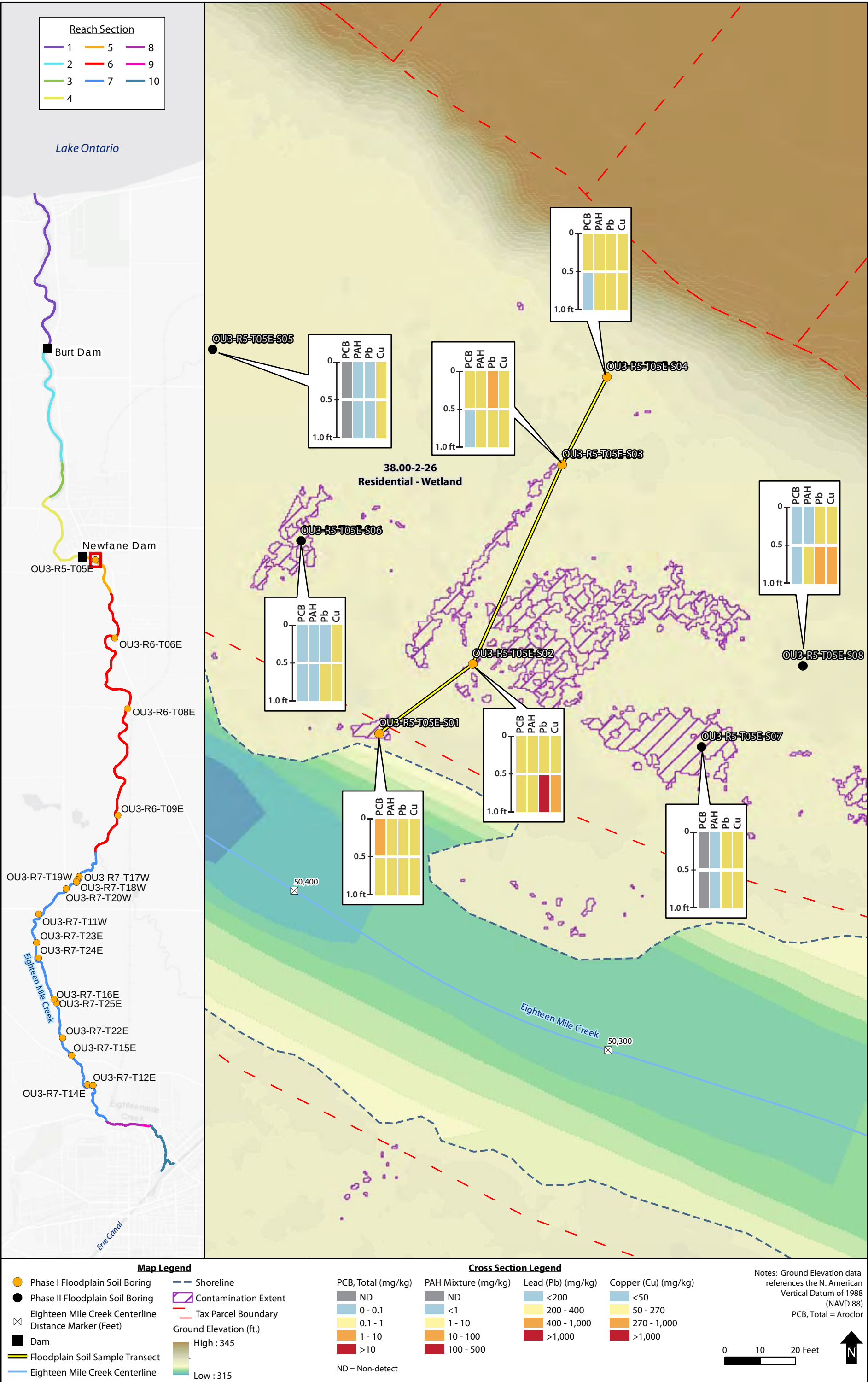
Figure 5-2j Floodplain Soil Sample Results - R7-T24E

Eighteen Mile Creek

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.







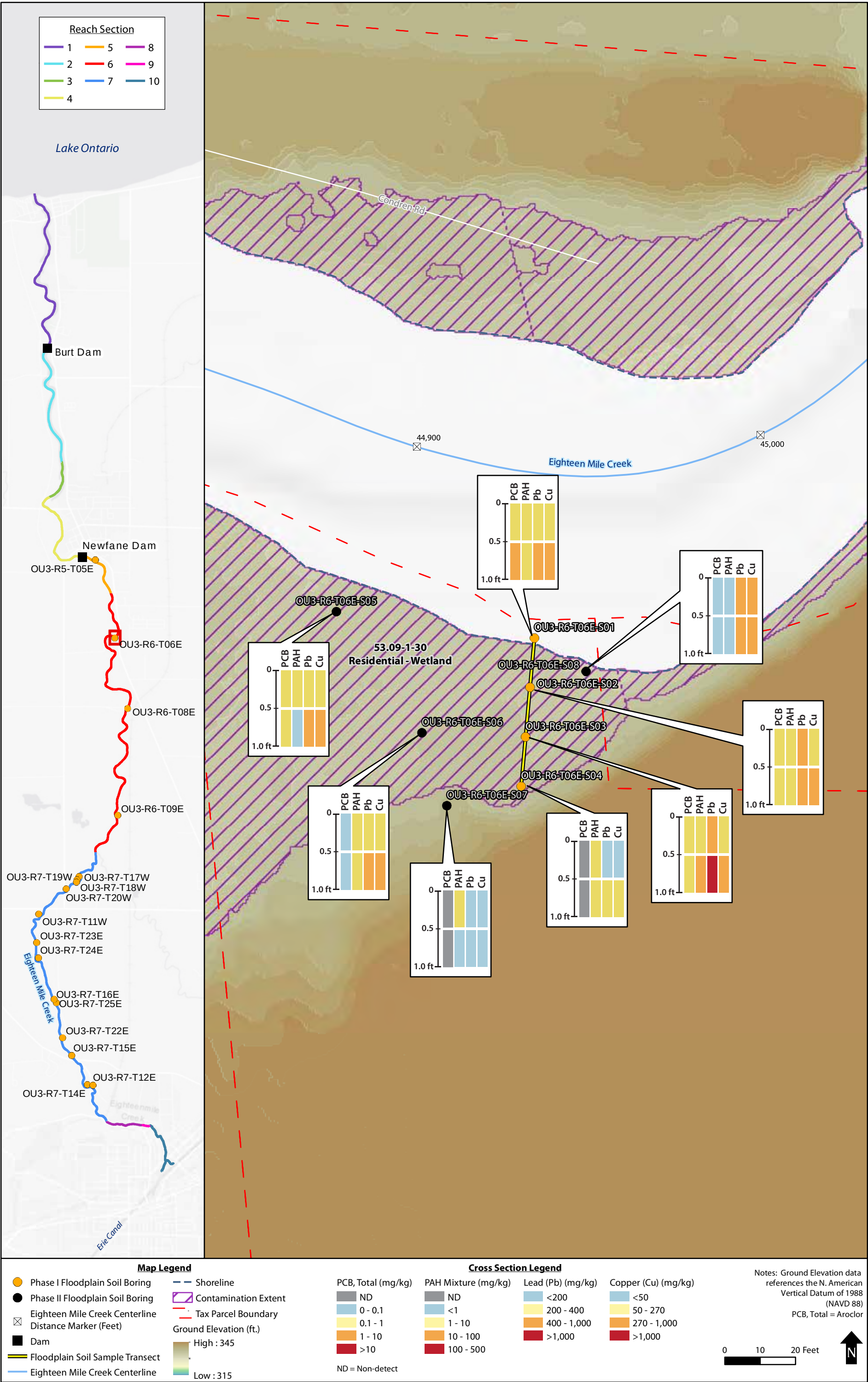
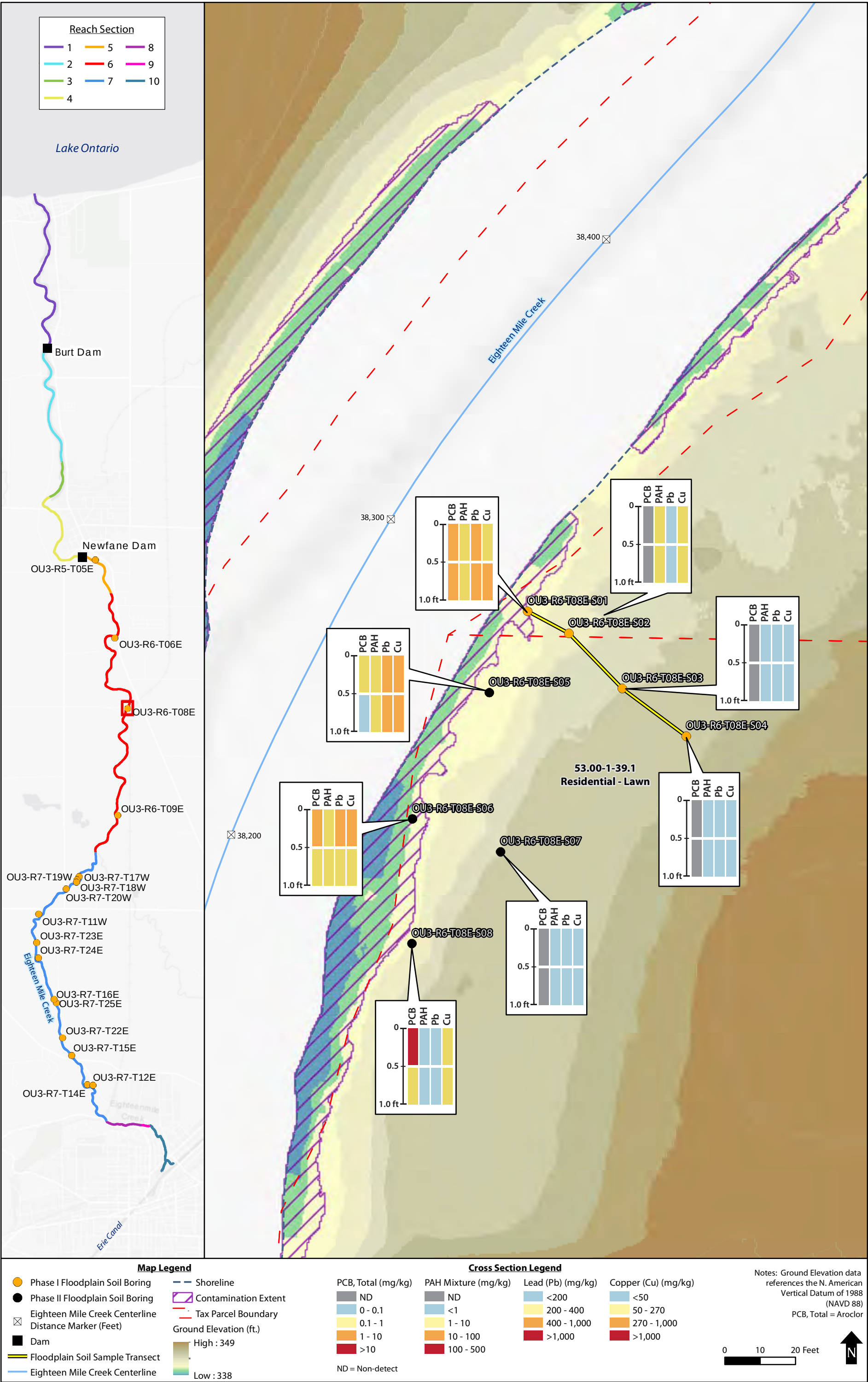
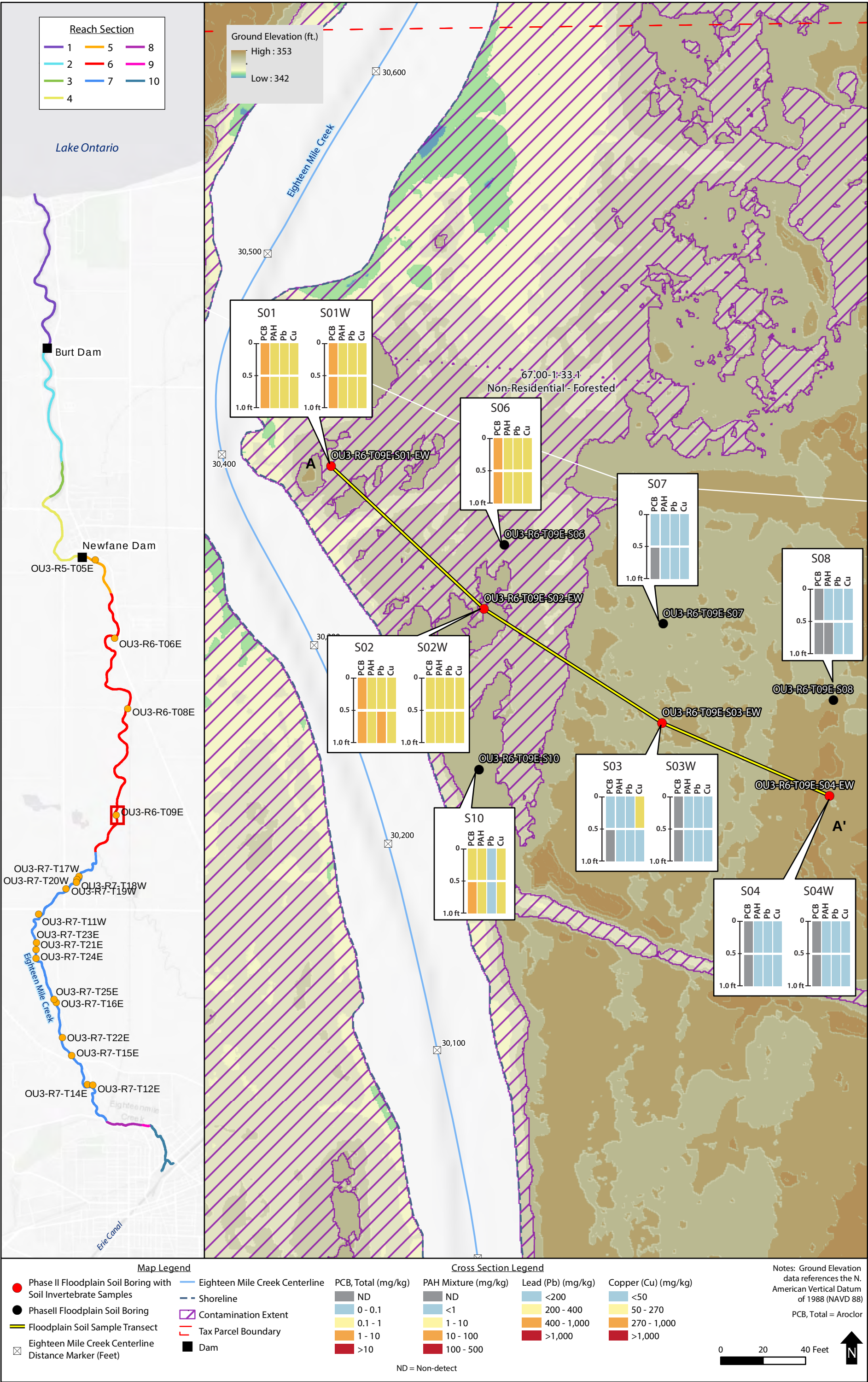


Figure 5-2n Floodplain Soil Sample Locations
R6-T06E
Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.





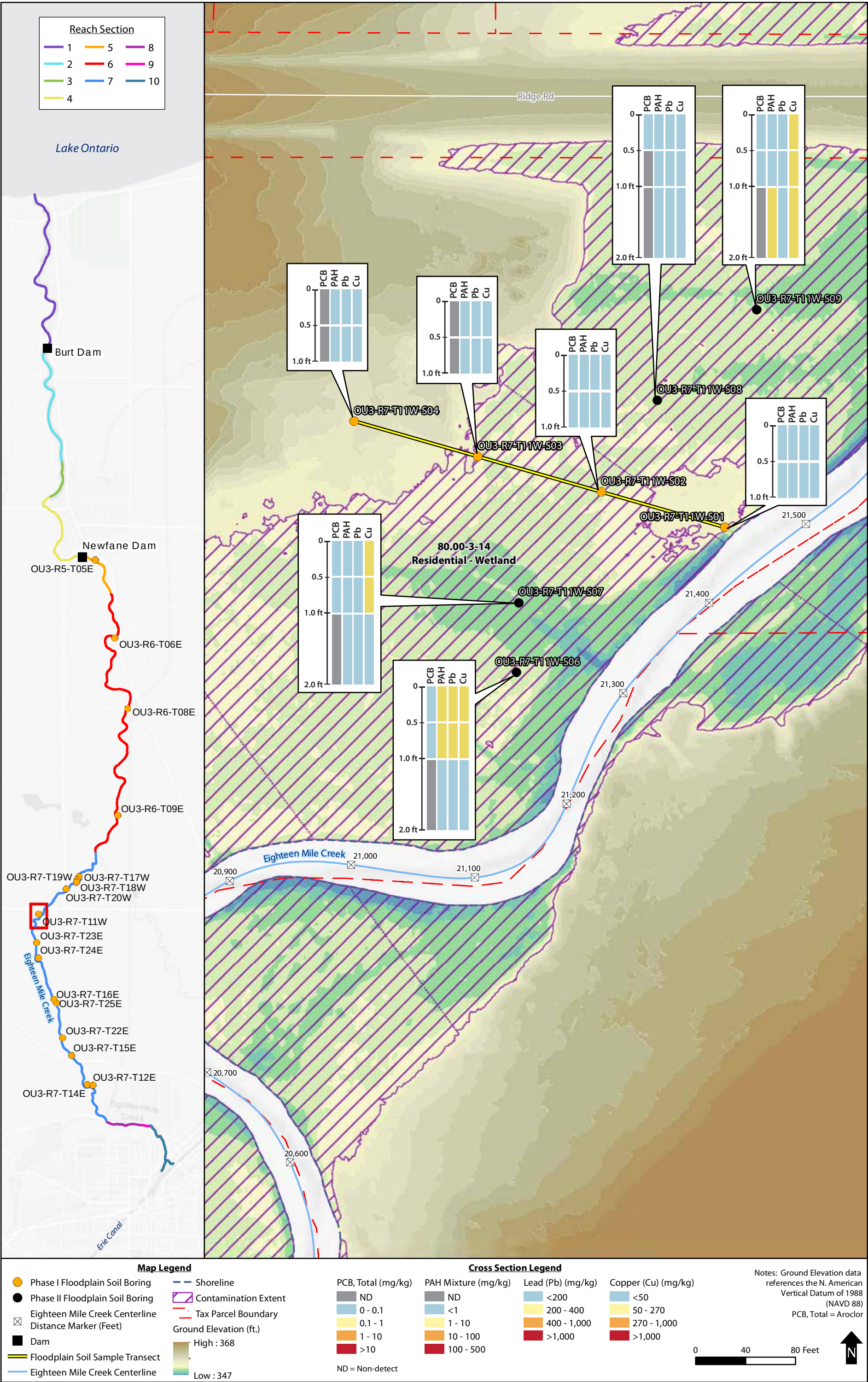
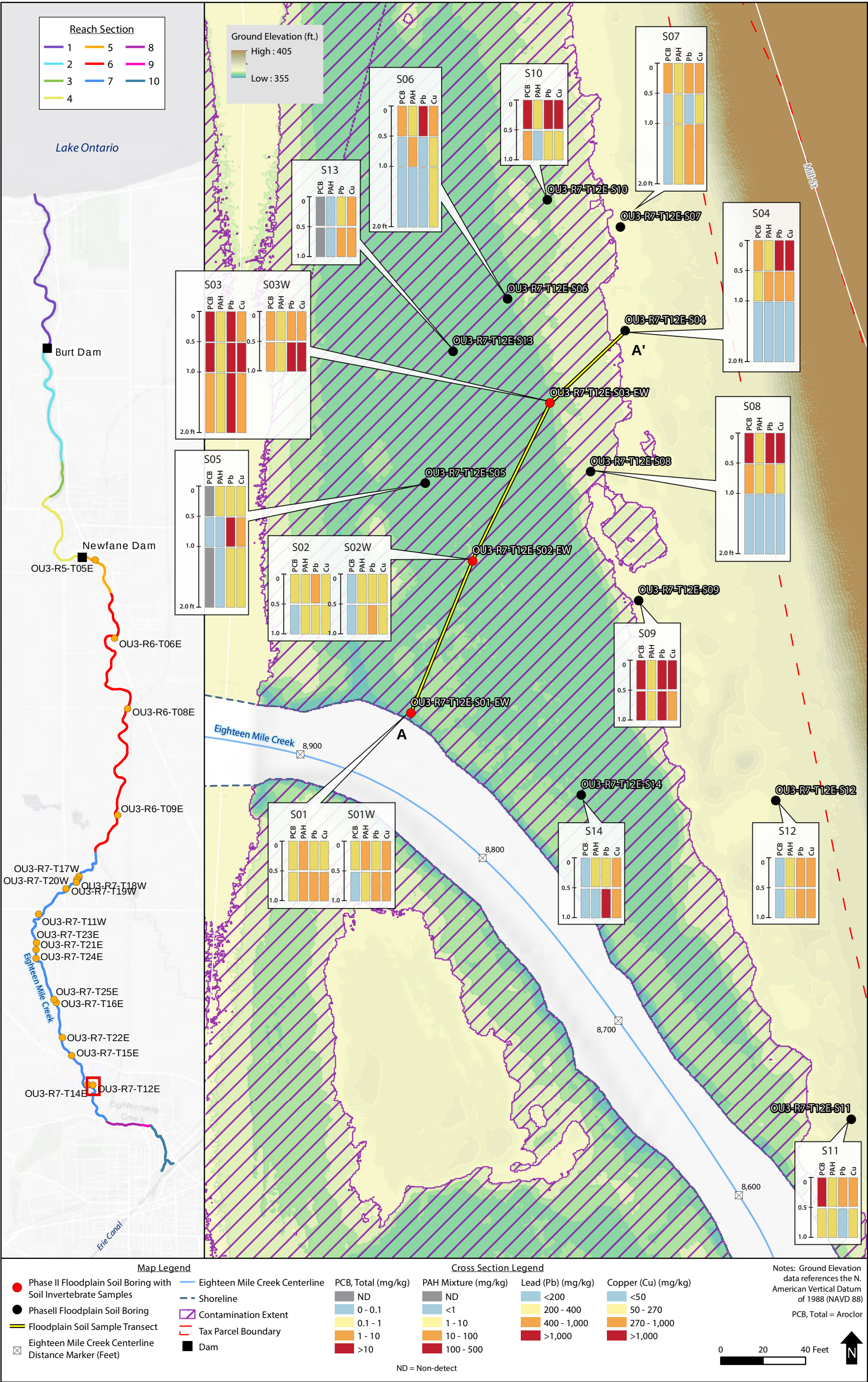
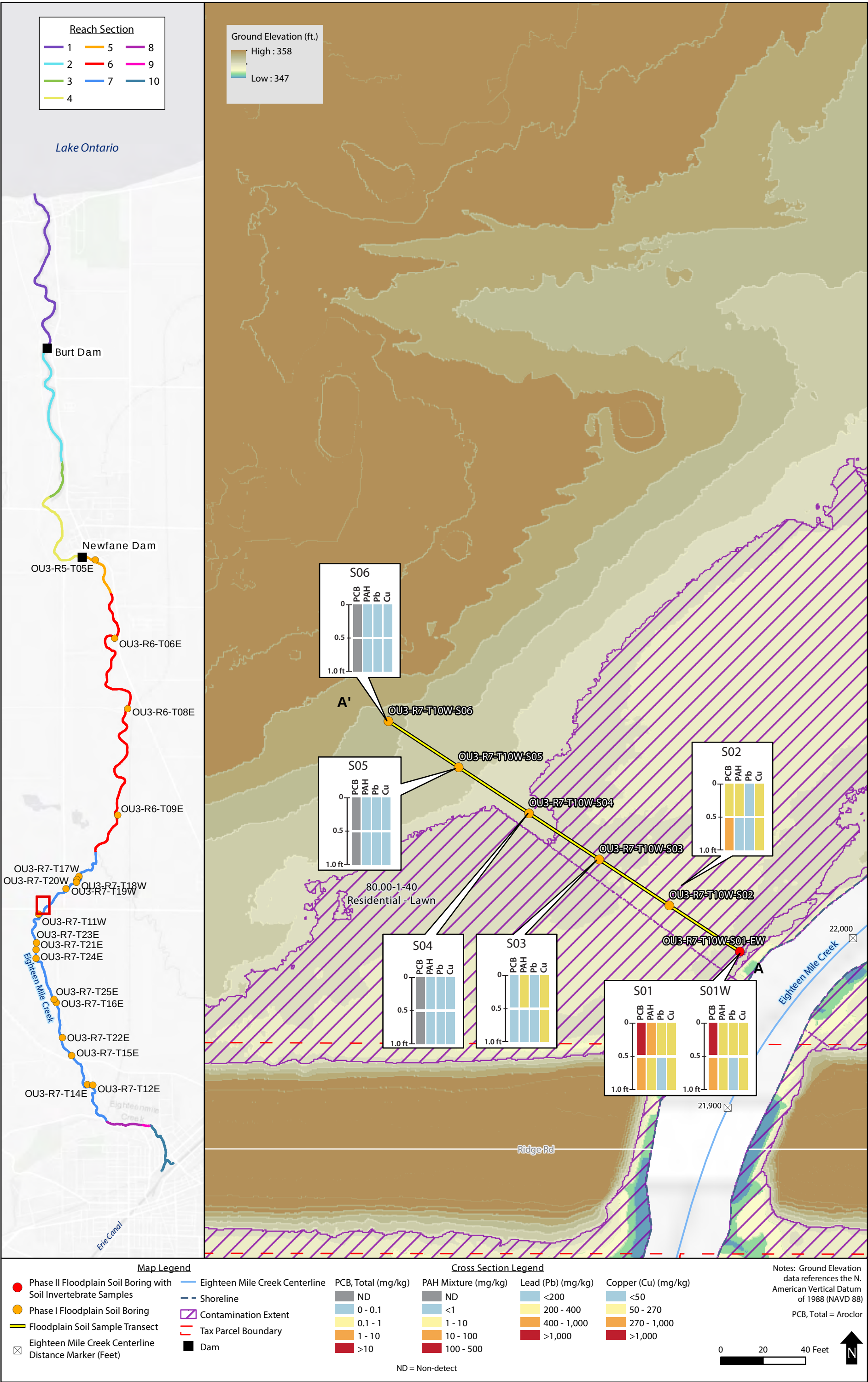


Figure 5-2q Floodplain Soil Sample Locations
R7-T11W
Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.





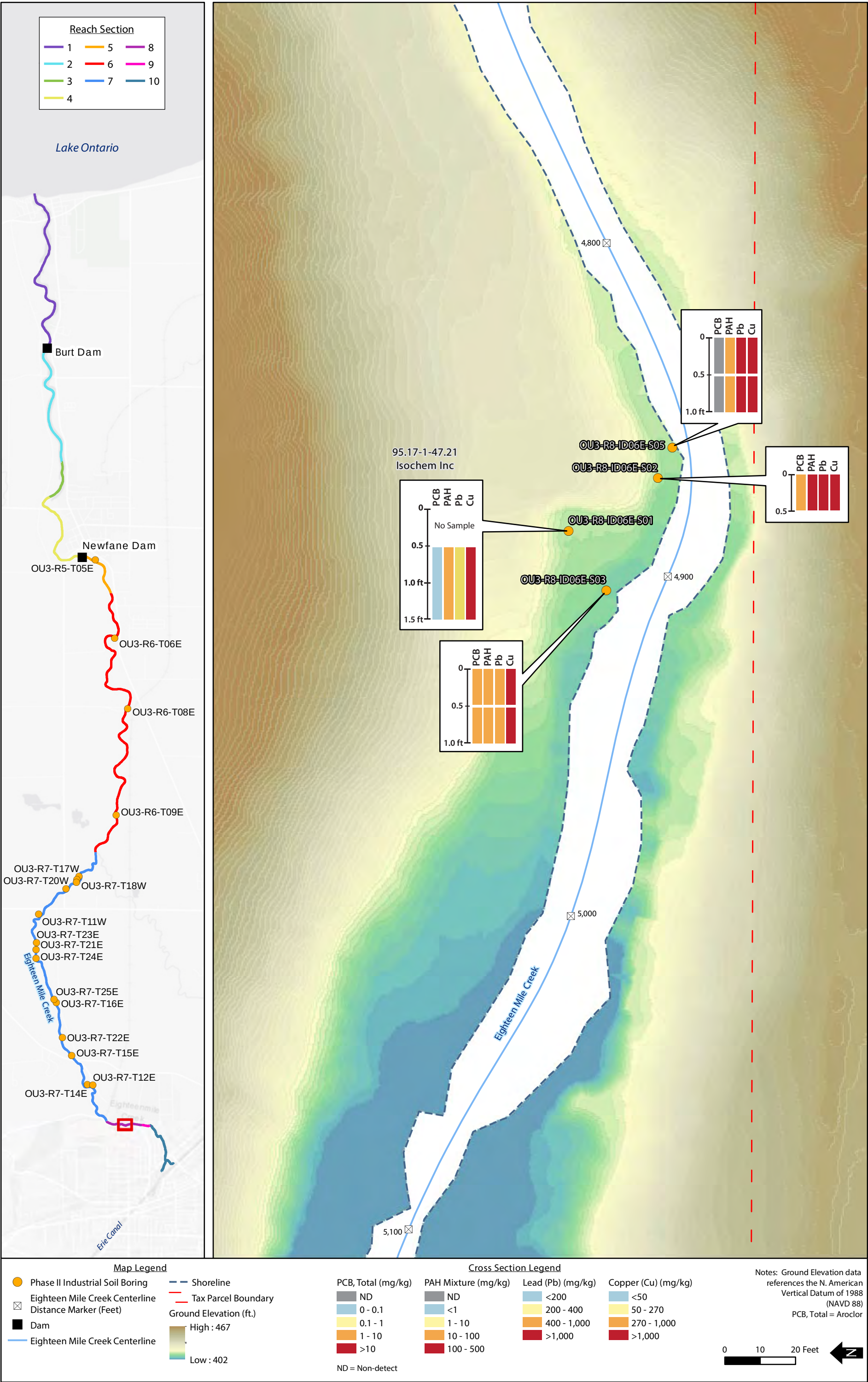


Figure 5-3 Phase II Industrial Soil Locations
Eighteen Mile Creek OU3

Data Source: Aqua Survey, Inc. 2009, 2018; Ecology and Environment, Inc. 2020; ESRI 2017; Kennon Surveying Services, Inc. 2018; Niagara County 2016.

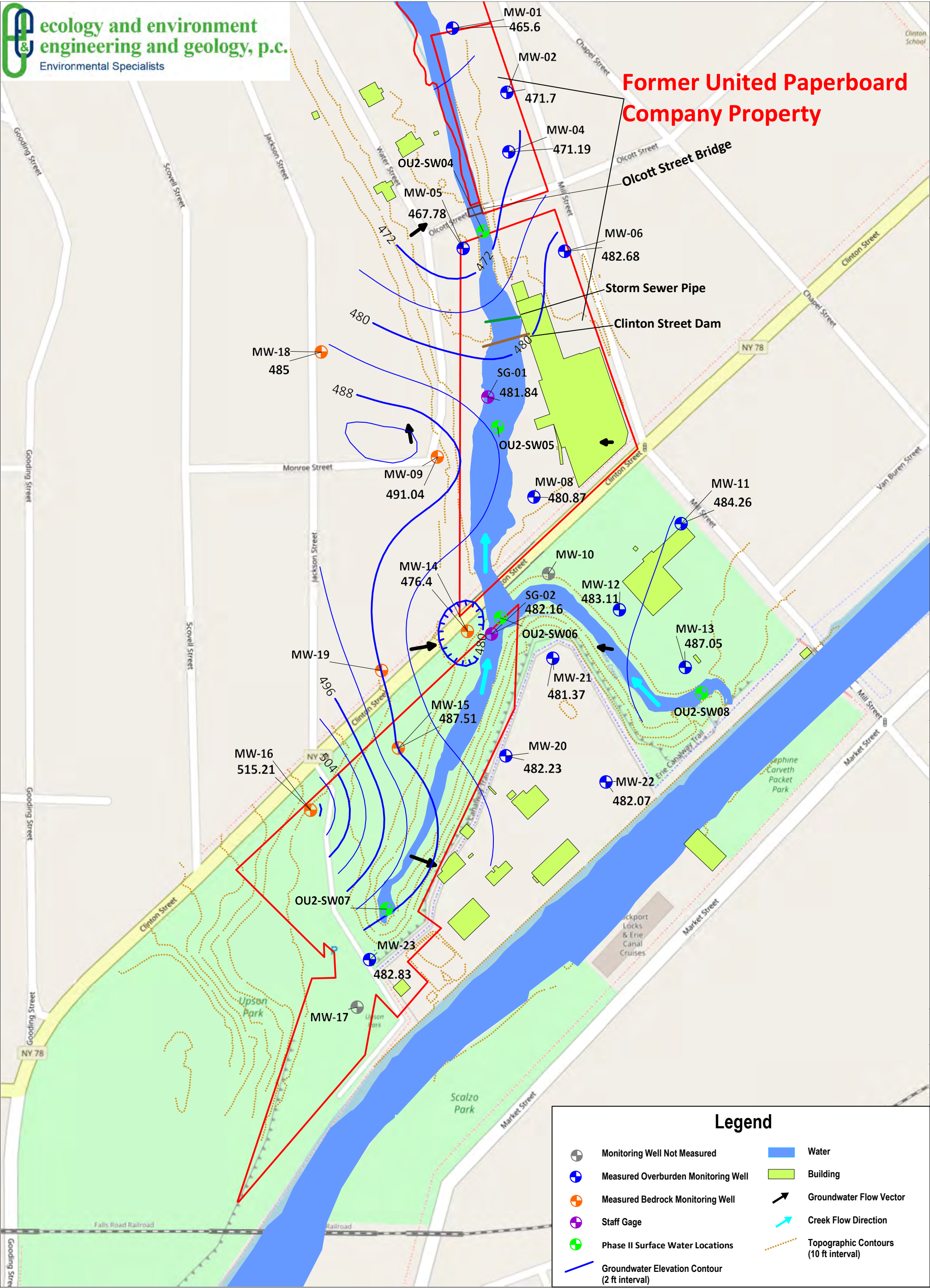


Figure 5-4
Proposed Groundwater Contours, October 2019,
Eighteen Mile Creek, Creek Corridor,
Lockport, New York

