2021 SAMPLING AND ANALYSIS WORKPLAN FOR FISH COMMUNITY, MACROINVERTEBRATE COMMUNITY, SEDIMENT CONTAMINANT AND TOXICITY ASSESSMENT ON THE EAST BRANCH OF THE LITTLE CALUMET RIVER

PREPARED BY

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LIST OF ACRONYMS

AIMS:	Assessment Information Management System
ALUS:	Aquatic Life Use Support
AU:	Assessment Unit
AUID:	Assessment Unit Identification Number
ASTM	American Standard Test Methods
BSS:	Biological Studies Section
CAS:	Chemical Abstract Services
CAT:	Category
CFR:	Code of Federal Regulations
CLP:	Contract Laboratory Program
cm:	Centimeter
CONG:	Congener
CPR:	Cardio-Pulmonary Resuscitation
CRQL:	Contract Required Quantification Limit
DNR:	Department of Natural Resources
DO:	Dissolved Oxygen
DQO:	Data Quality Objectives
EPA:	Environmental Protection Agency
FCA:	Fish Consumption Advisory
g:	Grams
GPS:	Global Positioning System
HD:	Hester-Dendy
HOM:	Homolog
HUC:	Hydrologic Unit Code
IAC:	Indiana Administrative Code
IBC:	Impaired Biotic Community
IC:	Indiana Code
IBI:	Index of Biotic Integrity
IDEM:	Indiana Department of Environmental Management
kg:	Kilogram
LOEL:	Lowest Observed Effect Level
MDL:	Method Detection Limit
NPS:	National Park Service
NRDA:	Natural Resource Damage Assessment
µg:	Microgram
µm:	Micrometer
µmol:	Micromole
µS:	Micro-Siemens
m:	Meter
mg/L:	Milligram per liter
MIX:	Mixture
ml	Milliliter
mm:	Millimeter
mIBI:	Macroinvertebrate Index of Biotic Integrity

MIwb:	Modified Index of Well-Being
mL:	Milliliter
MS/MSD:	Matrix Spike/Matrix Spike Duplicate
ng:	nanograms
NTU:	Nephelometric Turbidity Unit(s)
NWRO:	Northwest Regional Office
OWQ:	Office of Water Quality
PAH:	Polycyclic Aromatic Hydrocarbon
PCB:	Polychlorinated Biphenyl
PFD:	Personal Floatation Device
PPE:	Personal Protective Equipment
QAO:	Quality Assurance Officer
QA/QC:	Quality Assurance/Quality Control
QAPP:	Quality Assurance Project Plan
QHEI:	Qualitative Habitat Evaluation Index
RL:	Reporting Limit
RPD:	Relative Percent Difference
SEM:	Simultaneously Extracted Metals
SOLAS	Safety of Life at Sea
SOP:	Standard Operating Procedures
SU:	Standard Units
TMDL:	Total Maximum Daily Load
TOC:	Total Organic Carbon
U.S.:	United States
U.S. EPA:	United States Environmental Protection Agency
U.S. FWS:	United States Fish and Wildlife Service
WAPB:	Watershed Assessment and Planning Branch

DEFINITIONS

Benthic	Residing on the substrate surface.
Elutriate	To purify, separate, or remove lighter or finer particles by washing, decanting, and settling.
Macroinvertebrate	Aquatic animals which lack a backbone, are visible without a microscope, and spend some period of their lives in or around water.

I. PROJECT MANAGEMENT/PLANNING

Project Objective

ArcelorMittal (now Cleveland Cliffs) Burns Harbor (CCBH) is one of the largest fully integrated steel mills in North America. It is located in Burns Harbor, Porter County, Indiana, and is bordered by Lake Michigan (north) Burns Waterway (west) and East Branch Little Calumet River (EBLCR) to its south and west (Fig. 1). The facility manufactures intermediate and final steel products. Operations include 2 coke ovens, 2 blast furnaces, a sinter plant, hot strip mill as well as finishing and plate operations.

On August 11 and 13, 2019, CCBH experienced an exceedance of its daily maximum limit for ammonia-nitrogen at NPDES permitted Outfall 001. On August 13, 2019 CCBH experienced an exceedance of the daily maximum limit for total cyanide at Outfall 011 Outfall 001 discharges to the East Arm of the Little Calumet River which flows into Burns Waterway and eventually Lake Michigan. Salt Creek flows southwest from the waterway, while the Little Calumet flows east. The reported ammonia-nitrogen concentrations were 0.92 mg/L and 0.78 mg/L and the reported total cyanide concentration was 0.26 mg/L. CCBH continued to violate it's discharge limit throughout August 2019.

Cleveland Cliffs has three (3) outfalls that discharge to surface waters and one internal outfall. Outfalls 002 and 003 discharge to Lake Michigan, while Outfall 001 discharges to East Branch Little Calumet River. With an average discharge of 135 MGD, outfall 001 consists of treated wastewater from CCBH's secondary wastewater treatment plant (SWTP), non-contact cooling water, storm water, and Lake Michigan water. Internal outfall 011 discharges to outfall 001 and consists of treated wastewater from the SWTP as well as treated effluent from the Town of Burns Harbor sanitary wastewater treatment plant.

The SWTP treats process wastewaters from the following operations: sintering, blast furnaces, vacuum degassing, continuous casting, hot plate and strip mills, acid pickling, cold rolling, heat treat and hot dip coating lines, galvanizing, landfill leachate (Deerfield storage facility). There is 276 acres of impervious surface and 3, 724 acres of pervious surface on site; stormwater is directed to outfalls 001 and 002.

Post incident monitoring showed that from August 1 through August 31, 2019, AMBH exceeded numeric effluent limitations of its NPDES permit for Ammonia Nitrogen, total and free cyanide. Untreated wastewater was discharged from outfall 011 (internal) to outfall 001 which discharges directly to the East Branch Little Calumet River.

The releases killed approximately 2,900 fish. Initial ecological assessment of the area indicates that at least 5.3 km of in stream aquatic habitat, from outfall 001 to Lake Michigan, was impacted by the releases.

Fig. 1. ArcelorMittal (now Cleveland Cliffs) Burns Harbor (CCBH), Porter Co., Indiana.

In addition to the federally and state endangered Lake Sturgeon, East Branch Little Calumet River is within range of State and Federal endangered mussel and fish species and State species of special concern.

The objective of this project is to provide data that can be used to evaluate if release related chemicals are continuing to impact the benthic and fish communities that live in Lake Michigan, Burns Waterway, and the East Arm Little Calumet River. Chemical, physical, and biological parameters will be collected for the assessment. Sampling will be conducted primarily by staff from natural resource trustee agencies (IDEM, FWS, NPS and DNR). Sampling for this project will begin as early as May of 2021 and end in October 2021. Information collected will be used to provide the Trustees with water quality and biological data to assess the impacts to aquatic life.

Project/Task Organization and Schedule

Site reconnaissance activities will be conducted beginning in late April 2021. Reconnaissance activities will be conducted in the office and remotely through physical site visits.

Sediment contaminants and toxicity sampling will be conducted at approximately 12 sites (see Fig. 2, Fig. 3, Table 1).

Fish community will be sampled once at these same sites (Fig. 2, Fig. 3, Table 1) in summer 2021.

In-stream physical habitat will be measured using QHEI in summer 2021 at the sites fish community data is collected.

Macroinvertebrate community sampling will be conducted during two sampling events. Hester-Dendy (HD) artificial substrate samplers will be deployed at these same sites in August 2020 and retrieved six weeks later, in September 2020. This will be repeated in 2021.

In-situ water chemistry sampling will be conducted at these same locations in Summer 2021.

Background and Project/Task Description

This assessment work is a cooperative effort between IDEM, IDNR, FWS and NPS. Data collected through this monitoring effort of the East Branch Little Calumet River, Burns Waterway, and Lake Michigan will be used by the Natural Resource Trustees. Other organizations that help with data preparation, collection and analysis include private laboratories under contract with the State of Indiana (cite) and the Department of the Interior (USFWS 2020a, 2020b). For this sampling, the following media will be used for assessment purposes: fish and macroinvertebrate community assemblages, sediment contaminants and toxicity, in-situ water chemistry, and in stream physical habitat evaluations.

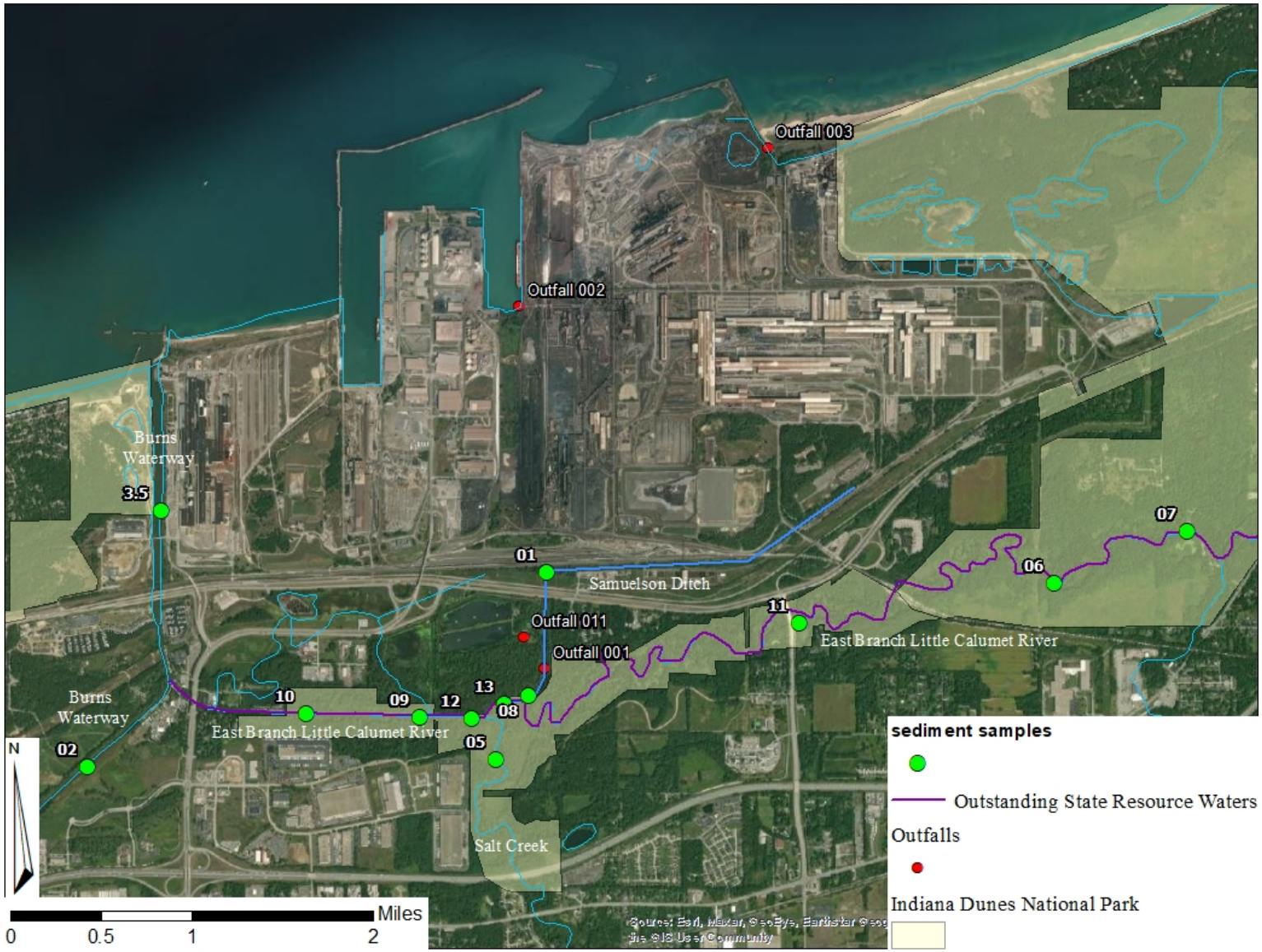

Fig. 2. Proposed sampling locations in the East Branch Little Calumet River Assessment Area, Porter County, Indiana.

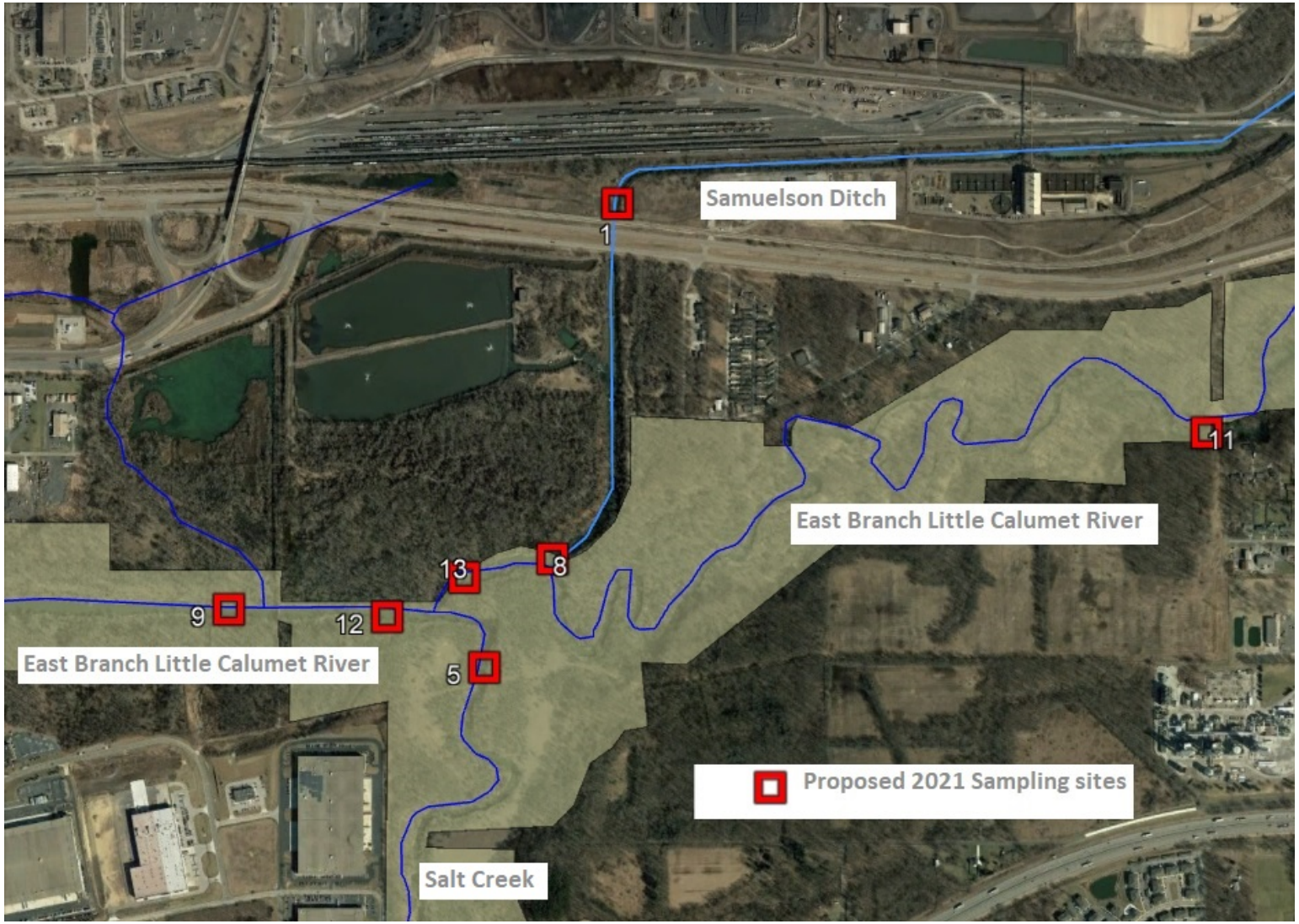

Fig. 3. Expanded view of proposed sampling locations in the East Branch Little Calumet River Assessment Area, Porter Co., IN.

Table 1. Proposed sampling locations and sampling actions for the East Branch Little Calumet River Assessment Area.

				sediment							water			
SITE NO	WATERBODY_NAME	Latitude	Longitude	OCs / PCBs	PAHs / Aliphatics	ICP metals	AVS/ SEM	pore-water nutrients	TOC / grain size	toxicity samples	hydro-lab & nutrients	major ions	metals	Cyanide
1	Samuelson Ditch (us SSRR)	41.619515	-87.145408	X	X	X	X	X	X	X	X	X	X	X
2	Burns Ditch (us EBLCR)	41.607864	-87.182865	X	X	X	X	X	X	X	X	X	X	X
3	Burns Ditch (us Lefty's)	41.615175	-87.173965											
3.5	Burns Ditch	41.624500	-87.176092	X	X	X	X	X	X	x	X	X	X	X
4	Burns Ditch (near small boat harbor mouth)	41.630997	-87.176631											
5	Salt Creek (us EBLCR)	41.610284	-87.148948	X	X	X	X	X	X	X	X	X	X	X
6	EBLCR (w Co Rd 150W)	41.619896	-87.103442	X	X	X	X	X	X	X	X	X	X	X
7	EBLCR (Co Rd 150W)	41.622423	-87.094646	X	X	X	X	X	X		X	X	X	X
8	Samuelson Ditch (ds #001)	41.612447	-87.147140	X	X	X	X	X	X	X	X	X	X	X
9	EBLCR ds Salt Creek	41.611440	-87.155763	X	X	X	X	X	X	x	X	X	X	X
10	EBLCR (Hwy 249)	41.611527	-87.164752	X	X	X	X	X	X	x	X	X	X	X
11	EBLCR (ds Hwy 149)	41.614958	-87.129716	X	X	X	X	X	X		X	X	X	X
12	EBLCR ds Salt Creek	41.611293	-87.151543	X	X	X	X	X	X	X	X	X	X	X
13	EBLCR us Salt Creek	41.612075	-87.149482	X	X	X	X	X	X	X	X	X	X	X

Data Quality Objectives (DQO)

The DQO process (U.S. EPA 2006) is a planning tool for data collection activities. The DQO process for the EBLCR sampling and analysis project is identified in the following seven steps:

1. **State the Problem**

   This project will gather biological, chemical, and habitat data at sites on the East Branch Little Calumet River, Burns Waterway, and Lake Michigan for purposes of characterizing the current benthic and biological conditions of the aquatic habitat.

2. **Identify the Decision**

   The objective of this project is to provide data that can be used by the Trustees to determine injury to natural resources. Twelve (12) sites will be sampled for concentrations of physical, chemical, and biological parameters (e.g. macroinvertebrate and fish community assemblage, in situ water chemistry, sediments, in-stream physical habitat).

   Biological Criteria:
   Indiana narrative biological criteria found at 327 IAC 2-1.5-5 (IDEM 2013) states that “all waters, except those designated as limited use, will be capable of supporting a well-balanced, warm water aquatic community.” The water quality standard found at 327 IAC 2-1.5-2 (97), defines a “well-balanced aquatic community” as “an aquatic community which is diverse in species composition, contains several different trophic levels, and is not composed mainly of strictly pollution tolerant species” (IDEM 2013). An interpretation or translation of narrative biological criteria into numeric criteria would be as follows: A stream segment is non-supporting for aquatic life use when the monitored fish or macroinvertebrate community (collected with the multi-habitat (MHAB) sampling method) receives an Index of Biotic Integrity (IBI) or macroinvertebrate IBI (mIBI) score of less than or equal to 35 which is considered “Poor” or “Very Poor” (IDEM 2013) or a mIBI score of <1.8 when using Hester-Dendy (HD) artificial substrate samplers (IDEM 2010).

3. **Identify the Inputs to the Decision**

   Field monitoring activities are required to collect physical, chemical, biological and habitat data. Samples will be collected for physical and chemical parameters as well as biological communities if conditions are not dangerous for staff to enter the river, waterway, or lake and barring any hazardous weather conditions or unexpected physical barriers to access the site. Even if the weather conditions, stream flow, and lake levels are safe, sample collections for biological communities may be postponed at a particular site in the river or waterway due to scouring of the stream substrate or instream cover following a high water event resulting in non-representative samples. Collection procedures for field

measurements, chemical, biological, and habitat data will be described in detail under Section II Measurement/Data Acquisition.

4. Define the Boundaries for the Study

See Fig. 2 and Table 1 for site information.

5. Develop a Decision Rule

IDEM makes aquatic life use support decisions from independent evaluations of biological and chemical data as outlined in Indiana's 2020 Consolidated Assessment and Listing Methodology (CALM, IDEM 2020) which can be found at https://www.in.gov/idem/nps/files/ir_2020_apndx_g_calm.pdf. It includes mIBI, IBI, and QHEI scoring and methods, including some of the pioneering work for these metrics (e.g. Karr et al. 1986) and the evolution of IDEM decision criteria and Indiana scoring. These methodologies are directed towards evaluating criteria to meet Clean Water Act requirements of 303(d) and 305(b) reporting and designated uses. The Trustees believe several of these methodologies are informative for evaluating sample results for NRDA purposes.

6. Specify Tolerable Limits on Decision Errors

Sampling design error is minimized by utilizing a comprehensive checklist of informational sources, evaluation of historical information, and a thorough watershed pre-survey. This sampling design has been formulated to address data deficiencies and render the optimum amount of data needed to fill gaps in the decision process.

Good quality data are essential for minimizing decision error. By minimizing both sampling design error and measurement error for physical and biological parameters, more confidence can be placed in the conclusions drawn on the stressors and sources affecting the water quality in the study area. These controls include water chemistry blanks and duplicates, biological duplicates, and laboratory controls through verification of species identifications as described in Field Procedure Manuals (IDEM 2002) and Standard Operating Procedures (SOPs, IDEM 1992b, 2010).

The QA/QC process detects deficiencies in the data collection as set forth in the IDEM QAPP for the Indiana Surface Water Quality Monitoring Program (IDEM 2004). The QAPP requires all contract laboratories to adhere to rigorous standards during sample analyses and to provide good quality usable data. Chemists within the Office of Land Quality's Science Services Branch will review IDEM laboratory analytical results for quality assurance. Any data which is "Rejected" due to analytical problems or errors will not be used for water quality assessment decisions. Any data flagged as "Estimated" may be used on a case by case basis. For DOI samples (i.e. sediment samples) the Analytical Control

Facility will review contract laboratories for compliance with contractual requirements and will review for QA/QC and validate the data.

7. Optimize the Design for Obtaining Data

The 12 sites that are to be sampled in this study were chosen based on several criteria. Sites that had previously been sampled for water quality monitoring by CCBH as requested by the State were selected first. Sites that had previously been sampled for macroinvertebrates and fish by the IDEM OWQ were selected so that the current study could provide a direct comparison to previously collected samples at those locations. Finally other site locations were chosen based on their relevant location to the spill area and impact. (Fig. 2, Table 1).

Training and Staffing Requirements

IDEM uses many SOPs (attachment) so any new staff member must be trained by experienced IDEM professionals on how to operate field and laboratory equipment for the collection of chemical, physical, and biological parameters as well as perform required QA/QC procedures. Before samples are collected, IDEM field personnel will spend several days in the office and in the field reviewing SOPs and conducting exercises in accordance with those SOPs.

The fish or macroinvertebrate community team leader should have six or more years' experience in or related to bio-assessments (Gibson et. al. 1996) with at least three years of experience with the aquatic communities in the region (U.S. EPA 1994a). Prior to conducting electrofishing for fish community sampling, crew members should review the Principles and Techniques of Electrofishing correspondence course provided by the U.S. Fish & Wildlife Service, National Conservation Training center (U.S. FWS 2018) as well as test equipment and conduct field training with less experienced crew members. The field crew leader will be responsible for completion of field data sheets, taxonomic accuracy, sampling efficiency and representation, and voucher specimen tracking.

Staff from the US FWS Analytical Control Facility (ACF) will assist with laboratory work requests and review laboratory data for adherence to QA/QC requirements specified in analytical test methods, and contract requirements (USFWS 2016, 2017, 2020a, 2020b). ACF will create QA/QC review reports for each laboratory. ACF will oversee data entry into ECDMS of information collected in the field and laboratory as well as perform data QA/QC review for accuracy and completeness.

Staff from the IDEM (OLQ) assist with laboratory work requests and review laboratory data for adherence to QA/QC requirements specified in analytical test methods, contract requirements and methods from the Office of Water Quality's QAPP for the Indiana Surface Water Quality Monitoring Program (IDEM 2004 Rev 3). The QA Officer will create QA/QC review reports for each laboratory, and will oversee data entry into AIMS

II of information collected in the field and laboratory as well as perform data QA/QC review for accuracy and completeness.

II. Measurement/Data Acquisition

Sampling Design and Site Locations

Site locations have been selected because they were affected by the releases from CCBH.

Site reconnaissance activities will be conducted in-house and through physical site visits. In-house activities include preparation and review of site maps and aerial photographs and potential access routes. Physical site visits include confirmation and documentation of access routes, water depth and determination of equipment needed to properly sample the site. Final target coordinates will be recorded using a hand-held Garmin GPS unit (WGS84).

Sampling Methods and Sample Handling

Field Parameter Measurements

All field parameter measurements and weather codes will be recorded on the IDEM Stream Sampling Field Data Sheet (Attachment 1) with other sampling observations. Dissolved oxygen (DO), pH, water temperature, specific conductance, and DO percent saturation will be measured with a data sonde/probe at each site just below the water surface. Measurement procedures and operation of the data sonde/probe shall be performed according to the manufacturers' manuals (Hydrolab Corporation 2002; YSI 2002) and Sections 2.10-2.13 of the Water Quality Surveys Section Field Procedure Manual (IDEM 2002, pages 67-79).

Fish Community Sampling

Fish community sampling will be conducted at 12 sites located in the East Branch Little Calumet River (EBLCR), Burns Waterway (BW), and possibly one location in Burns Harbor of Lake Michigan. All fish community samples will be collected and processed by IDEM, NPS and USFWS biologists. Fish community samples will be collected with a boat-mounted SmithRoot 5 PPG electrofisher. Sample collections during high flow or turbid conditions will be avoided due to low collection rates (which may result in non-representative samples) and safety considerations for the sampling team. Fish will be collected using dip nets with fiberglass handles and netting of 1/8 inch bag mesh. Fish assemblage assessments will be performed in a sampling reach of 15 times the average wetted width, with a minimum reach of 50 meters and a maximum reach of 500 meters (Simon 1991, Simon and Dufour 2005; U.S. EPA 1995). An attempt will be made to sample all habitat types available within the sample reach to ensure adequate representation of the fish community present at the time of the sampling event (IDEM 1992a).

Fish collected in the sampling reach will be sorted by species into baskets and buckets. Young-of-the-year fish, less than 20 mm total length, will not be retained in the community sample (Simon 1990; U.S. EPA 1995). Prior to processing fish specimens and completion of the fish community sample field data sheet (Attachment 2), 1-2 individuals per species will be preserved for future reference if there are more than 10 individuals for that species collected in the sampling reach, the specimens can be positively identified, and the individuals for preservation are small enough to fit in a 2000 mL jar. If however, there are few individuals captured or the specimens are too large to preserve, photographs of key characteristics will be taken for later examination. Taxonomic characteristics for possible species encountered in the basin of interest will be reviewed prior to field work. Fish specimens should also be preserved if they cannot be positively identified in the field (especially those that co-occur, i.e. the striped and common shiners), individuals that appear to be hybrids or have anomalies, as well as dead specimens that are taxonomically valuable for undescribed taxa, life history studies, or research projects.

Data will be recorded for non-preserved fish on the fish community sample field data sheet (Attachment 2) consisting of the following: number of individuals, minimum and maximum total length (mm), mass weight in grams (g), and number of individuals with deformities, eroded fins, lesions, tumors, and other anomalies. Once the data have been recorded, specimens will be released within the sampling reach if possible. Data will be recorded for preserved fish specimens following taxonomic identification in the laboratory.

Fish community samples will be logged into a Nalgene® field sample log book designated by the project manager (IDEM 1992b). A file folder will be created containing information on the site (including location description, latitude/longitude, ecoregion, hydrologic unit, stream segment, and natural region), sample collected, method of collection, and a map showing the location where the sample was collected. Information on the fishing method and effort will be recorded on the fish community sample field data form (Attachment 2). Site maps will be marked to show the general or specific areas from which fish were collected as well as the unit of effort required for the collection.

A completed Biological Samples Chain of Custody form (Attachment 3) is used to track samples from the field to the laboratory and accompanies the samples through the identification process. Fish in the laboratory may be verified by regionally recognized non-IDEM freshwater fish taxonomists. All data are checked for:

1) completeness
2) calculations performed
3) data entered into the database
4) checked again for data entry errors.

Macroinvertebrate Community Sampling

A Hester-Dendy (HD) artificial substrate sampler, consisting of three individual multi-plate samplers attached to a large patio stone and a float, will be placed into the center

of the sampling area. A second and third HD sampler will be placed in near-shore habitat of both banks to increase the probability that at least one set of samplers is later retrieved. Placement of the HD samplers will follow the IDEM OWQ SOP (IDEM 1992b) describing the method. The locations of each HD sampler will also be marked on field data sheets (Fig. 1) and georeferenced with a hand-held Garmin GPS unit (Table 1).

A second sampling trip will be conducted six to eight weeks after the first sampling event, to allow for sufficient time for colonization of the HD samplers by macroinvertebrates. Each retrieved HD sampler will be placed into a 1500ml plastic bottle preserved with 70% reagent alcohol. Each bottle will be labeled on the outside with the following information: collection date, site number, a nine digit macro sample number, waterbody name, county, location description and sample collection method (IDEM 1992b). A label containing the same information will be placed on the inside of the bottle with the sample contents. Before leaving the site, an IDEM OWQ Macroinvertebrate Header Form (Attachment 4) will be completed for the sample.

Scrapes of the samplers will be conducted in the lab. The picked sample will be sent to a contract laboratory for identification at the lowest practical taxonomic level (usually genus or species level, if possible) and evaluated using macroinvertebrate metrics. Assuming that no samplers are lost, there would be a total of 36 (12 sites with 3 samplers) HD samples requiring genus-species level identifications of up to 300 organisms.

Sediment Contaminants Sampling

Sediment contaminants samples will be collected at all 12 sites during June 2021. Sediment samples will consist of surficial grabs of aquatic fine sediment. In non-wadable portions, a petite ponar dredge will be used to obtain sediments. Several grabs will be collected in from the river channel and composited together in a clean, stainless steel full size (4” deep) steam table pan and stirred with a clean stainless steel scoop to thoroughly mix the sample. If portions of the river, waterway, and lake are wadable, staff will walk upstream and collect several samples of surface sediments from depositional areas with a clean stainless steel soup ladle to comprise a sample. After compositing and thoroughly mixing, sediments will be scooped into chemically clean I-Chem Thermo Scientific sample jars using the clean stainless steel mixing scoop; sediments will be stirred between jars if multiple jars are filled. Contaminants analysis tasks and the requirements of the contract laboratory will determine the types and sizes of sample jars that are to be used. All jars will be labeled with the following information: collection date, site number, sample number, waterbody name, county, location description and sample description (composite, core, single grab, etc.) After filling the jars, sediment samples will be stored on wet ice in a cooler and kept chilled at 4 ^{o}C. Upon completion of sediment collections, all sediment contaminants samples will be driven or shipped via Fed-Ex overnight to the contract analytical laboratory(s). in order to meet contract holding times (Table 2, ACF 2012).

All reusable stainless steel pans, scoops, ladles, dredges, neoprene or other chemical resistant gloves, hands, etc. will be thoroughly washed and rinsed using ALCONOX®

Table 2: Holding times for Sediment Contaminant Parameters (ACF 2012).

Analysis	Matrix	Sample Size / Container	Preservative	CRDL ppm dry	Holding Time
Aliphatics	Soil	100 grams/G	Cool, < 5°C	0.01	40 days
Aromatics	Soil	100 grams/G	Cool, < 5°C	0.01	40 days
Organochlorines	Soil	100 grams/G	Cool, < 5°C	0.01	40 days
Aluminum	Soil	100 grams/G	Cool, < 5°C	10	6 months
Arsenic	Soil	100 grams/G	Cool, < 5°C	0.5	6 months
Barium	Soil	100 grams/G	Cool, < 5°C	1	6 months
Beryllium	Soil	100 grams/G	Cool, < 5°C	0.2	6 months
Boron	Soil	100 grams/G	Cool, < 5°C	10	6 months
Cadmium	Soil	100 grams/G	Cool, < 5°C	0.2	6 months
Chromium	Soil	100 grams/G	Cool, < 5°C	1	6 months
Copper	Soil	100 grams/G	Cool, < 5°C	1	6 months
Grain Size	Soil	100 grams/P	Cool, < 5°C		28 days
Iron	Soil	100 grams/G	Cool, < 5°C	10	6 months
Lead	Soil	100 grams/G	Cool, < 5°C	5	6 months
Magnesium	Soil	100 grams/G	Cool, < 5°C	10	6 months
Manganese	Soil	100 grams/G	Cool, < 5°C	5	6 months
Mercury	Soil	100 grams/G	Cool, < 5°C	0.2	28 days
Molybdenum	Soil	100 grams/G	Cool, < 5°C	5	6 months
Nickel	Soil	100 grams/G	Cool, < 5°C	5	6 months
Selenium	Soil	100 grams/G	Cool, < 5°C	1	6 months
Strontium	Soil	100 grams/G	Cool, < 5°C	5	6 months
TOC (Total Organic Carbon)	Soil	100 grams/P	Cool, < 5°C		28 days
Vanadium	Soil	100 grams/G	Cool, < 5°C	1	6 months
Zinc	Soil	100 grams/G	Cool, < 5°C	5	6 months

* Analyses are not contract required. Detection limits are provided by the contract lab performing the analyses.

Abbreviations G = Glass AG = Amber Glass P = Plastic

ppm = parts per million CRDL = Contract Required Detection Limit

Notes

1. Sample preservation should be performed during sample collection.
2. Organic samples should only be collected in glass containers.
3. In providing the above sample sizes, there will be sufficient sample for matrix spikes, matrix duplicates and matrix spike duplicate analyses.

detergent, a scrub brush, and ambient water after collecting sediments. Staff will wear nitrile gloves when collecting, mixing, and filling jars with sediment (IDEM 2008).

A file folder will be created containing information similar to that which was recorded for the fish tissue sample. Sediment samples will be logged into field sample log book designated by the project manager (IDEM 1992b). A Site Information (Attachment 5) and Sample Field Data (Attachment 6) sheets will be completed at the time of sample collection. A completed Sample Chain of Custody form (Attachment 7) is used to track samples from the field to the laboratory and accompanies the samples through the identification process. Any method deviations will be thoroughly documented in the raw data (IDEM 2008).

Sediment Toxicity Sampling

Sediment toxicity samples will be collected at 12 sites in the EBLCR, during June 2021 in conjunction with the sediment chemistry sampling. All sediment contaminants samples will be collected and processed by IDEM and USFWS biologists. Samples for sediment toxicity analysis will be collected following the same collection procedures described for collection of sediment contaminants samples. However, the composited sediment toxicity sample will be scooped into a 2.5 gallon sample bucket with an affixed label containing the same information found on the sediment contaminants jars. After filling, sediment samples will be stored on ice in a cooler and kept chilled at 4 ^{o}C. Upon completion of sediment sampling, all sediment contaminant samples will be driven together to the contract toxicological laboratory. The file folder and field data sheets used for the sediment contaminants sample will also be used for the sediment toxicity sample (IDEM 2008).

Habitat Assessments

Habitat assessments will be completed immediately following fish and macroinvertebrate community sample collections while on-site using the Ohio Environmental Protection Agency Qualitative Habitat Evaluation Index (QHEI), 2006 edition (Attachment 8) (OEPA 2006; Rankin 1995).

Water Chemistry Sampling

In-situ water chemistry values (dissolved Oxygen (DO), pH, water temperature, specific conductance, turbidity, and DO percent saturation) (Table 3) will be measured at all 12 sites in the East Arm Little Calumet River (Table 1) during June or July 2021. A YSI multiprobe and Hach turbidity meter will be used to collect these measurements according to the manufacturers operating manuals and Sections 2.10 – 2.13 of the Surveys Section Field Procedure Manual (IDEM 2002). Water samples collected will be recorded on an IDEM Field Chemistry Data form. Water samples will also be collected (Table 4) and analyzed for metals, ions and nutrients (Table 5).

Table 3. Field Parameters showing method and IDEM quantification limit.

Parameters	Method	IDEM Quantification Limit
Dissolved Oxygen (data sonde optical)	ASTM D888-09	0.05 mg/L
Dissolved Oxygen (data sonde)	SM[1] 4500-OG	0.03 mg/L
Dissolved Oxygen (Winkler Titration)	SM 4500-OC [2]	0.20 mg/L
Dissolved Oxygen % Saturation (data sonde optical)	ASTM D888-09	0.05 %
Dissolved Oxygen % Saturation (data sonde)	SM 4500-OG	0.01 %
pH (data sonde)	EPA 150.2	0.10 S.U.
pH (field pH meter)	SM 4500H-B [2]	0.10 S.U.
Specific Conductance (data sonde)	SM 2510B	1.00 µmhos/cm
Temperature (data sonde)	SM 2550B(2)	0.1 °C
Temperature (field meter)	SM 2550B(2) [2]	0.1 °C
Turbidity (data sonde)	SM 2130B	0.02 NTU [3]
Turbidity (Hach™ turbidity kit)	EPA 180.1	0.05 NTU [3]

[1] (SM=Standard Method)
[2] Method used for Field Calibration Check
[3] NTU = Nephelometric Turbidity Unit(s)

Table 4. Water Chemistry Sample Container, Preservative, and Holding Time Requirements.

Parameter	Container	Preservative	Holding Times
[1]Alkalinity as $CaCO_3$*	1 L, plastic, narrow mouth	None	14 days
[2]Ammonia-N**	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days
Chloride*	1 L, plastic, narrow mouth	None	28 days
Chemical Oxygen Demand**	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days
Hardness (as $CaCO_3$*) Calculated	1 L, plastic, narrow mouth	HNO_3 < pH 2	6 months
Metals (Total & Dissolved)	1 L, plastic, narrow mouth	HNO_3 < pH 2	6 months
Nitrate + Nitrite-N**	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days
Total Phosphorus**	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days
Solids (All Forms)*	1 L, plastic, narrow mouth	None	7 days
Sulfate*	1 L, plastic, narrow mouth	None	28 days
Total Kjeldahl Nitrogen**	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days
Total Organic Carbon**	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days

[1]General chemistry includes all parameters noted with an *.
[2]Nutrients include all parameters noted with a **.

Table 5. Water Chemistry Parameters, Test Method, IDEM and Laboratory Reporting Limits.

Priority Metals	Total	Dissolved	Test Method	IDEM Reporting Limit (µg/L)	Pace Laboratory Reporting Limit (µg/L)
Aluminum	☒	☒	EPA 200.7	150	20
Antimony	☒	☒	EPA 200.8	1	0.5
Arsenic	☒	☒	EPA 200.8	5	2.5
Boron	☒	☐	EPA 200.8		
Calcium	☒	☐	EPA 200.7	40	40
Cadmium	☒	☒	EPA 200.8	2	1
Chromium	☒	☒	EPA 200.8	3	1.5
Copper	☒	☒	EPA 200.8	2	1
Lead	☒	☒	EPA 200.8	2	1
Magnesium	☒	☐	EPA 200.7	95	100
Nickel	☒	☒	EPA 200.8	1.5	0.75
Selenium	☒	☒	EPA 200.8	4	2
Silver	☒	☒	EPA 200.8	0.3	0.3
Zinc	☒	☒	EPA 200.8	6	6

Anions / Physical	Pace Test Method	IDEM Reporting Limit (µg/L)	Pace Laboratory Reporting Limit (µg/L)
Alkalinity (as CaCO3)	EPA 310.2	10	10
Total Solids	SM2540B	1	10
Total Suspended Solids	SM2540D	1	1
Dissolved Solids	SM2540C	10	10
Sulfate	EPA 300.0	0.05	0.35
Chloride	EPA 300.0	1	1
Fluoride	SM4500-F-C		
Hardness (as CaCO3) calculated	SM2340B	0.4	1

Nutrients / Organic	Pace Test Method	IDEM Reporting Limit (µg/L)	Pace Laboratory Reporting Limit (µg/L)
TKN	SM4500N(Org)	0.03	0.3
Ammonia-N	SM4500NH3-G	0.01	0.1
Nitrate+Nitrite-N	EPA 353.2	0.05	0.01
Total Phosphorus	EPA 365.1	0.01	0.05
Total Organic Carbon (TOC)	SM5310C	1	1
Chemical Oxygen Demand (COD)	EPA 410.4	3	10

Fish Community Sample Analysis

Unidentified fish community specimens will be identified in the NPS laboratory in Porter, Indiana. Data will be recorded for preserved fish on the fish community sample field data sheet (Attachment 2) consisting of the following: number of individuals, minimum and maximum total length (mm), mass weight in grams (g), and number of individuals with deformities, eroded fins, lesions, tumors, and other anomalies. The taxa identified in each sample will be entered into IDEM's AIMS II database and an Index of Biotic Integrity (IBI) score will be computed for that sample (Simon 1991).

Macroinvertebrate Community Sample Analysis

The contractor will identify invertebrates to Genus species and create appropriate voucher specimens and returned to the agency project contact. Each vial will contain a label listing pertinent collection information. The taxa identified in each sample will be made available to be entered into IDEM's AIMS II database and a mIBI score will be computed for that sample.

Sediment Contaminants Analysis

All sediment samples for contaminant analyses will be analyzed and reported in accordance with the technical specifications, methods, and quality assurance/quality control requirements of the U.S. Fish and Wildlife Service Analytical Control Facility Performance-Based Work Contracts with Geochemical and Environmental Research Group (GERG) for organic analyses (USFWS 2017) and Trace Element Research Laboratory (TERL) (USFWS 2016), both located in College Station, TX. The following analyses will be performed: general chemistry, acid volatile sulfides and simultaneously extracted metals (SEM) (Table 6), metals (Table 7), pesticides (Table 8) and aliphatic and aromatic hydrocarbon compounds (Tables 9 and 10). A laboratory duplicate and two matrix spikes will be included with each analysis set as a part of the laboratory QA/QC programs.

Sediment Toxicity Analysis

Sediment toxicity samples will be analyzed by the United States Geological Survey's Columbia Environmental Research Center (CERC), USGS, Columbia MO (Jeffrey Steevens, pers. comm., 10 September 2020) following protocols for toxicity testing of the East Branch Calumet River and Burns Waterway sediments with the amphipod *Hyalella azteca* (Attachment 9), with the midge *Chironomus dilutus* (Attachment 10) and the isolation of pore water from sediment (Attachment 11). The following analyses will be performed: *H. azteca* 28 day test for survival, weight, biomass and 42 day test for reproduction; *C. dilutus* 10 day test for survival, weight and biomass. The *H. azteca* (amphipod) 28-day exposure will be conducted at 10 sites.

Table 6. General Chemistry target parameters, Acid Volatile Sulfides target parameter, and Simultaneously Extracted Metals target parameters (USFWS 2016) using (U.S. EPA 1994c) methods

Parameter	CAS Number	Soil / Sediment RL	units	Methods
Total Organic Carbon (TOC)	N/A	500	mg/kg	9060[1]
% Solids	N/A	1	%	9060
Acid Volatile Sulfides	18496-25-8	0.068	umols/g dry wt.	EPA-821-R-91-100[2]
Cadmium	7440-43-9	0.00022	umols/g dry wt.	6020A[3]
Copper	7440-50-8	0.0039	umols/g dry wt.	6020A
Lead	7439-92-1	0.0024	umols/g dry wt.	6020A
Nickel	7440-02-0	0.0022	umols/g dry wt.	6020A
Zinc	7440-66-6	0.019	umols/g dry wt.	6020A
Mercury	7439-97-6	0.000025	umols/g dry wt.	7470A[4]

[1] - U.S. EPA 1994c
[2] - U.S. EPA 1991
[3] - U.S. EPA 1994b
[4] - U.S. EPA 1994d

Table 7. Minimum Acceptable Method Detection Limits (USFWS 2016) using Trace Element Research Laboratory (TERL, College Station, TX).

Parameter	CAS Number	Reporting Limit (µg/g, dw)	Methods
Aluminum	7429-90-5	10.	
Arsenic	7440-38-2	0.50	
Barium	7440-39-3	1.0	
Beryllium	7440-41-7	0.20	
Boron	7440-42-8	10.	
Cadmium	7440-43-9	0.20	
Calcium	7440-70-2	2	
Chromium	7440-47-3	1.0	
Cobalt	7440-48-4	0.5	
Copper	7440-50-8	1.0	
Iron	7439-89-6	10.	
Lead	7439-92-1	1	
Magnesium	7439-95-4	10.	
Manganese	7439-96-5	5.0	
Mercury	7439-97-6	0.20	
Molybdenum	7439-98-7	5.0	
Nickel	7440-02-0	1.0	
Selenium	7782-49-2	1.0	
Sodium	7440-23-5	180	
Strontium	7440-24-6	1	
Thallium	7440-28-0	5	
Vanadium	7440-62-2	1.0	
Zinc	7440-66-6	5.0	

Table 8. Sediment pesticides target parameter list (USFWS 2017) using Geochemical and Environmental Research Group (GERG), College Station, TX.

Parameter	CAS Number	Reporting Limit (µg/g)	Methods
alpha BHC	319-84-6	0.01	
alpha chlordane	5103-71-9	0.01	
beta BHC	319-85-7	0.01	
cis-nonachlor	5103-73-1	0.01	
dieldrin	60-57-1	0.01	
endrin	72-20-8	0.01	
gamma BHC	319-86-8	0.01	
gamma chlordane	57-74-9	0.01	
HCB	118-74-1	0.01	
heptachlor epoxide	76-44-8	0.01	
mirex	2385-85-5	0.01	
op'-DDD		0.01	
op'-DDE		0.01	
op'-DDT		0.01	
oxychlordane	5103-74-2	0.01	
PCB-TOTAL	1336-36-3	0.01	
pp'-DDD	72-54-8	0.01	
pp'-DDE	72-55-9	0.01	
pp'-DDT	50-29-3	0.01	
toxaphene	8001-35-2	0.01	
trans-nonachlor	39765-80-5	0.01	
Polychlorinated biphenyl (PCB)	1336-36-3	0.01	

Table 9. Aliphatic Compounds target parameter list (U.S. FWS 2017) using Gas Chromatography/Flame Ionization Detection (GERG).

Parameter	CAS Number	Reporting Limit (µg/g)	Methods
n-decane	124-18-5	0.01	SOP 1016, Rev 4
n-undecane	1120-21-4	0.01	SOP 1016, Rev 4
n-dodecane	112-40-3	0.01	SOP 1016, Rev 4
n-tridecane	629-50-5	0.01	SOP 1016, Rev 4
n-tetradecane	629-59-4	0.01	SOP 1016, Rev 4
n-pentadecane	629-62-9	0.01	SOP 1016, Rev 4
n-hexadecane	544-76-3	0.01	SOP 1016, Rev 4
n-heptadecane	629-78-7	0.01	SOP 1016, Rev 4
n-octadecane	593-45-3	0.01	SOP 1016, Rev 4
n-nonadecane	629-92-5	0.01	SOP 1016, Rev 4
n-eicosane	112-95-8	0.01	SOP 1016, Rev 4
n-heneicosane	629-94-7	0.01	SOP 1016, Rev 4
n-docosane	629-67-0	0.01	SOP 1016, Rev 4
n-tricosane	638-67-5	0.01	SOP 1016, Rev 4
n-tetracosane	643-31-1	0.01	SOP 1016, Rev 4
n-pentacosane	629-99-2	0.01	SOP 1016, Rev 4
n-hexacosane	630-01-3	0.01	SOP 1016, Rev 4
n-heptacosane	593-49-7	0.01	SOP 1016, Rev 4
n-octacosane	630-02-4	0.01	SOP 1016, Rev 4
n-nonacosane	630-03-5	0.01	SOP 1016, Rev 4
n-triacontane	638-68-6	0.01	SOP 1016, Rev 4
n-hentriacontane	630-04-6	0.01	SOP 1016, Rev 4
n-dotriacontane	544-85-4	0.01	SOP 1016, Rev 4
n-tritriacontane	630-05-7	0.01	SOP 1016, Rev 4
n-tetratriacontane	14167-59-0	0.01	SOP 1016, Rev 4
Pristane	1921-70-6	0.01	SOP 1016, Rev 4
phytane	638-36-8	0.01	SOP 1016, Rev 4

Table 10. Aromatic Hydrocarbon Compounds target parameter list (U.S. FWS 2017) using Selected Ion Monitoring Gas Chromatography/Mass Spectrometry (GERG).

Parameter	CAS Number	Reporting Limit (µg/g)	Methods
naphthalene	91-20-3	0.01	SOP 1006 Rev 5
C1-naphthalenes	119-64-2	0.01	SOP 1006 Rev 5
C2-naphthalenes	573-98-8	0.01	SOP 1006 Rev 5
C3-naphthalenes	2245-38-7	0.01	SOP 1006 Rev 5
C4-naphthalenes	1134-40-3	0.01	SOP 1006 Rev 5
biphenyl	92-52-4	0.01	SOP 1006 Rev 5
acenaphthalene	208-96-8	0.01	SOP 1006 Rev 5
acenaphthene	83-32-9	0.01	SOP 1006 Rev 5
fluorene	86-73-7	0.01	SOP 1006 Rev 5
C1-fluorenes		0.01	SOP 1006 Rev 5
C2-fluorenes		0.01	SOP 1006 Rev 5
C3-fluorenes		0.01	SOP 1006 Rev 5
phenanthrene	85-01-8	0.01	SOP 1006 Rev 5
anthracene	120-12-7	0.01	SOP 1006 Rev 5
C1-phenanthrenes		0.01	SOP 1006 Rev 5
C2-phenanthrenes		0.01	SOP 1006 Rev 5
C3-phenanthrenes		0.01	SOP 1006 Rev 5
C4- phenanthrenes		0.01	SOP 1006 Rev 5
dibenzothiophene	132-65-0	0.01	SOP 1006 Rev 5
C1-dibenzothiophenes		0.01	SOP 1006 Rev 5
C2-dibenzothiophenes		0.01	SOP 1006 Rev 5
C3-dibenzothiophenes		0.01	SOP 1006 Rev 5
fluoranthene	206-44-0	0.01	SOP 1006 Rev 5
pyrene	129-00-0	0.01	SOP 1006 Rev 5
(C1-fluoranthenes+C1-pyrenes)		0.01	SOP 1006 Rev 5
benz(a)anthracene	56-55-3	0.01	SOP 1006 Rev 5
chrysene	281-01-9	0.01	SOP 1006 Rev 5
C1-chrysenes		0.01	SOP 1006 Rev 5
C2-chrysenes		0.01	SOP 1006 Rev 5
C3-chrysenes		0.01	SOP 1006 Rev 5
C4-chrysenes		0.01	SOP 1006 Rev 5
benzo(b)fluoranthene	205-99-2	0.01	SOP 1006 Rev 5
benzo(k)fluoranthene	207-08-9	0.01	SOP 1006 Rev 5
benzo(e)pyrene	192-97-2	0.01	SOP 1006 Rev 5
benzo(a)pyrene	50-32-8	0.01	SOP 1006 Rev 5
perylene	198-55-0	0.01	SOP 1006 Rev 5
indeno(1,2,3-cd)pyrene	101686-49-1	0.01	SOP 1006 Rev 5
dibenz(a,h)anthracene	53-70-3	0.01	SOP 1006 Rev 5
benzo(g,h,i)perylene	191-24-2	0.01	SOP 1006 Rev 5
2-methylnaphthalene	91-57-6	0.01	SOP 1006 Rev 5

1-methylnaphthalene	91-20-3	0.01	SOP 1006 Rev 5
2,6-dimethylnaphthalene	581-42-0	0.01	SOP 1006 Rev 5
2,3,5-trimethylnaphthalene	2245-38-7	0.01	SOP 1006 Rev 5
1-methylphenanthrene	832-69-9	0.01	SOP 1006 Rev 5
1.4.8.2 Organophosphate		0.01	SOP 1006 Rev 5

The *H. azteca* (amphipod) 42-day long- term exposure and *C. dilutus* (midge) 10-day exposures will be conducted at 10 sites. The 28-d sediment toxicity test will also be conducted for *Lampsilis siliquoidea* (Fatmucket) (Attachment 12). Pore water will be extracted from all 12 sites to assess metals and ammonia. We will also conduct a toxic identification evaluation (TIE; Ho et al 2007) on 5 of the sediment samples.

Field Parameters Measurements

Field measurements of dissolved oxygen, temperature, pH, conductivity, and turbidity will be taken during each sampling event. The field parameters and their respective test methods and sensitivity limits are identified below in Table 25. During each sampling event, field observations from each site and ambient weather conditions at the time of sampling are noted and documented on stream sampling field data sheets (Attachment 12). A digital photo of both up-stream and down-stream of the sampling site will be taken, logged, and documented for later references.

Field Instrument Testing and Calibrations

The Datasonde will be calibrated immediately prior to each week's sampling (IDEM 2002). Calibration results and drift values will be recorded, maintained, stored and archived in log books located in the calibration laboratories at the Shadeland facility. The drift value is the difference between two successive calibrations. Field parameter calibrations will conform to the procedures as described in the instrument users manuals (Hydrolab Corporation 2002, YSI 2002). The DO component of the calibration procedure will be conducted using the air calibration method. The unit will be field checked for accuracy once during the week by comparison with a Winkler DO test, as well as Hach™ turbidity, pH and temperature meters. Weekly calibration verification results will be recorded on the stream sampling field data sheets (Attachment 12) and entered into the AIMS II database.

Field Analysis Data

In-situ water chemistry field data are collected in the field using calibrated or standardized equipment. Calculations may be done in the field or later at the office. Analytical results, which have limited QC checks, are included in this category.

Detection limits and ranges have been set for each analysis. Quality control checks (such as duplicate measurements, measurements of a secondary standard, or measurements using a different test method or instrument) which are performed on field or laboratory data are usable for estimating precision, accuracy, and completeness for the project.

Fish Community Data

Duplicate fish community samples and habitat assessments will be collected a rate of 10 percent of the total fish community sites sampled, approximately one in the basin (U.S. EPA 1995). Duplicate sampling will be performed once all initial sites have been sampled, with at least two weeks of recovery between the initial and replicate sampling events. The duplicate fish community sampling and habitat assessment will be performed with either a partial or complete change in field team members (U.S. EPA 1994a, U.S. EPA 1995). The resulting IBI and QHEI total score between the initial visit and the revisit will be used to evaluate precision. Laboratory identifications and QA/QC of taxonomic work is maintained by the laboratory supervisor of the Probabilistic Monitoring Section of IDEM.

Macroinvertebrate Community Data

Duplicate habitat assessments will be collected at a rate of 10 percent of the total macroinvertebrate sites sampled, approximately one in the basin. This will result in a precision evaluation based on a 10% duplication of samples collected. The resulting mIBI and QHEI total score between the initial sample and the duplicate sample will be used to evaluate precision.

The resulting mIBI and QHEI total score between the initial sample and the duplicate sample will be used to evaluate precision. Laboratory identifications and QA/QC of taxonomic work will be verified by the contractor and voucher specimens will be provided to and maintained by IDEM.

Sediment Contaminants Data

Laboratory duplicates and matrix spikes will be included with each analysis set as a part of the laboratory QA/QC programs.

Sediment Toxicity Data

The United States Geological Survey Columbia Environmental Research Center will test two control sediments: 1) West Bearskin Lake sediment (about 2% total organic carbon; Ingersoll et al. 1998) and 2) quartz sand (Mount 2011), for each set of toxicological tests conducted. Several replicates will be ran for the controls and the test sediments.

III. ASSESSMENT/OVERSIGHT

Field and laboratory performance and system audits will be conducted to ensure good quality data. The field and laboratory performance includes precision measurements by relative percent difference (RPD) of field and laboratory duplicate, accuracy measurements by percent of recovery of MS/MSD samples analyzed in the laboratory, and completeness measurements by the percent of planned samples that are actually collected, analyzed, reported, and usable for the project.

Data Quality Oversight Assessment Levels

The water samples and various types of data collected by this program are intended to meet the quality assurance criteria and Data Quality Assessment (DQA) Levels as described in the WAPB QAPP (IDEM 2017).

IV. DATA VALIDATION AND USABILITY

Quality Assurance/Data Qualifiers and Flags

The various data qualifiers and flags that will be used for quality assurance and validation of the data are found in IDEM's Office of Water Quality's WAPB QAPP (IDEM 2017).

Data Usability

The environmental data collected and its usability are qualified and classified into one or more of the four categories: Enforcement Capable Results , Acceptable Data, Estimated Data, and Rejected Data as described in IDEM's Office of Water Quality's WAPB QAPP (IDEM 2017).

Data collected will be recorded in the AIMS II database. All site folders are maintained at the WAPB facility. All data and reports will be made available to public and private entities that find the data useful.

Role	Training/Experience	Training References	Training Notes
All Staff that Participate in Field Activities	-Basic First Aid and Cardio-Pulmonary Resuscitation (CPR) -Personal Protective Equipment (PPE) Policy -Personal Flotation Devices (PFD)	-a minimum of 4 hours of in-service training provided by WAPB (IDEM 2010) -IDEM 2008 -February 29, 2000 WAPB internal memorandum regarding use of approved PFDs	-Staff lacking 4 hours of in-service training or appropriate certification will be accompanied in the field at all times by WAPB staff that meet Health and Safety Training requirements -Indiana Code [14-8-2-315] requires a high intensity whistle and Safety of Life at Sea (SOLAS) certified strobe light when working on co-jurisdictional waters or during hours of darkness

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