
# 2024 Blue River and Indian Creek Special Project Work Plan

PREPARED BY

Michaela Hecox
Targeted Monitoring Section

Indiana Department of Environmental Management
Office of Water Quality
Watershed Assessment and Planning Branch
Targeted Monitoring Section
100 North Senate Avenue
MC65-40-2 Shadeland
Indianapolis, Indiana 46204-2251

November 3, 2023

B-062-OWQ-WAP-XXX-23-W-R0

***This page is intended to be blank.***

## Approval Signatures

Timothy Bowren — 11/3/2023
Timothy Bowren, Quality Assurance Lead — Date
Technical and Logistical Services Section

Ali Meils — 11/2/2023
Ali Meils, Section Chief — Date
Targeted Monitoring Section

Stacy L. Sobat — 11/2/2023
Stacy Sobat, Section Chief — Date
Probabilistic Monitoring Section

Caleb Rennaker — 11/3/2023
Caleb Rennaker, Section Chief — Date
Technical and Logistical Services Section

Kristen Arnold — 11/3/2023
Kristen Arnold, Branch Chief — Date
Water Assessment and Planning Branch

The IDEM Quality Assurance (QA) Manager participated in the development of this Quality Assurance Project Plan (QAPP).

Kelly Jones — 11/13/2023
IDEM Quality Assurance Staff — Date
Office of Program Support

***This page is intended to be blank.***

# Work Plan Organization

This work plan is an extension of the existing Indiana Department of Environmental Management (IDEM) Watershed Assessment and Planning Branch (WAPB), July 2023, Quality Assurance Project Plan (QAPP) for Indiana Surface Water Programs (Surface Water QAPP) (IDEM 2023a) and October 2020 QAPP for Biological Community and Habitat Measurements (IDEM 2020a); and serves as a link to the existing QAPP as well as an independent QAPP of the project. Per the United States Environmental Protection Agency (U.S. EPA) 2006 Guidance on Systematic Planning Using the Data Quality Objectives (DQO) Process (U.S. EPA 2006) and the U.S. EPA 2002 Guidance for Quality Assurance Project Plans (U.S. EPA 2002), this work plan establishes criteria and specifications, pertaining to a specific water quality monitoring project, usually described in the following four groups or sections of a QAPP per Guidance for Quality Assurance Project Plans (U.S. EPA 2002).

**Group A. Project Management Planning**

A.1. Title and Approval Sheet

A.2. Table of Contents

A.3. Distribution List

A.4. Project Organization

A.5. Problem Definition and Background

A.6. Project Description

A.7. Quality Objectives and Criteria for Measurement Data

A.8. Special Training and Certification

A.9. Documents and Records

**Group B. Data Generation and Acquisition**

B.1. Sampling Process Design (Experimental Design)

B.2. Sampling Methods

B.3. Sample Handling and Custody

B.4. Analytical Methods

B.5. Quality Control

B.6. Instrument or Equipment Testing, Inspection, and Maintenance

***This page is intended to be blank.***

Table of Contents

# List of Attachments



# List of Figures



# List of Tables

# List of Acronyms

| | |
|---|---|
| AIMS | Assessment Information Management System |
| ASTM | American Society for Testing and Materials |
| AUID | Assessment Unit Identifiers |
| DO | Dissolved oxygen |
| DQA | Data Quality Assessment |
| DQO | Data Quality Objectives |
| GPS | Global Positioning System |
| HUC | Hydrologic Unit Code |
| IAC | Indiana Administrative Code |
| IBI | Index of Biotic Integrity |
| IDEM | Indiana Department of Environmental Management |
| µS/cm | Micro Siemens per Centimeter (1 µS/cm = 1 µmho/cm) |
| mg/L | Milligram per Liter |
| MHAB | Multihabitat |
| mL | Milliliter |
| NTU | Nephelometric Turbidity Unit(s) |
| OHEPA | Ohio Environmental Protection Agency |
| OWQ | Office of Water Quality |
| PPE | Personal Protective Equipment |
| QA/QC | Quality Assurance and Quality Control |
| QAPP | Quality Assurance Project Plan |
| QHEI | Qualitative Habitat Evaluation Index |
| S.U. | Standard Units |
| SM | Standard Methods |
| SOP | Standard Operating Procedures |
| TDS | Total Dissolved Solids |
| TKN | Total Kjeldahl Nitrogen |
| TMDL | Total Maximum Daily Load |
| U.S. EPA | United States Environmental Protection Agency |
| µg/L | Micrograms per Liter |
| WAPB | Watershed Assessment and Planning Branch |

# Definitions

| | |
|---|---|
| Assessment Unit | Individual segment of a stream or river (measured and reported in miles) used for assessing waters. Length of a stream AU can vary. A single AU may or may not represent the entire stream to which it is associated.<br>Example: Large rivers are commonly broken into smaller, separate AUs. Smaller streams may be grouped together into a single, “catchment” AU based on hydrology and other factors which affect water quality. |
| Elutriate | To purify, separate, or remove lighter or finer particles by washing, decanting, and settling. |
| 15-minute pick | A component of the multihabitat macroinvertebrate sampling method, used to maximize taxonomic diversity while in the field. The 1-minute kick sample and 50-meter sweep sample collected at a site are first combined and elutriated. Macroinvertebrates are then manually removed from the resulting sample for 15 minutes. |
| 50-meter sweep sample | A component of the multihabitat macroinvertebrate sampling method in which approximately 50 meters of all available habitat in a stream or river is sampled with a standard 500 micrometer mesh width D-frame dip net by taking 20-25 individual “jab” or “sweep” samples, which are then composited. |
| Macroinvertebrate | Aquatic animals which lack a backbone, are visible without a microscope, and spend some period of their lives in or around water. |
| 1-minute kick sample | A component of the multihabitat macroinvertebrate sampling method in which approximately 1 $m^2$ of riffle or run substrate habitat in a stream or river is sampled with a standard 500 µm mesh width D-frame dip net for approximately 1 minute. |
| Pour point | An outlet of a sub watershed or the common point where all the water flows out of any given sub watershed. |
| Reach | A segment of a stream used for sampling. |
| Targeted site | A sampling site intentionally selected based on specific monitoring objectives or decisions to be made. |

# A. Project Management

## A.1. Project Objective

IDEM selected targeted water quality sampling sites within the Blue River and Indian Creek watersheds for a watershed study in support of Purdue University's project proposal to the Natural Resources Conservation Service's (NRCS) Regional Conservation Partnership Program (RCPP), titled "Farmers Helping Hellbenders Initiative." The sampling sites are located within the following 10-digit HUCs: Mill Creek-Blue River (0514010407), Whiskey Run-Blue River (0514010408), Blue River (0514010409), South Fork-Blue River (0514010406), Upper Indian Creek (0514010403), Middle Indian Creek (0514010404), and Lower Indian Creek (0514010405) (Figure 1, Table 1). The main objective of the 2024 Blue River and Indian Creek Special Project is to support the RCPP project by providing physical, chemical, and biological data in the targeted watersheds. This study will also support IDEM's 2024 performance monitoring project to determine whether watershed restoration efforts resulted in water quality improvement, and subsequently, delisting of stream segments from the 303(d) List of Impaired Waters. This type of monitoring provides valuable data for the purposes of conserving habitat for the state-endangered eastern hellbender (*Cryptobranchus alleganiensis alleganiensis*), assessing water quality, supporting local watershed planning activities, and allowing for future evaluations of the water quality within the watersheds studied.

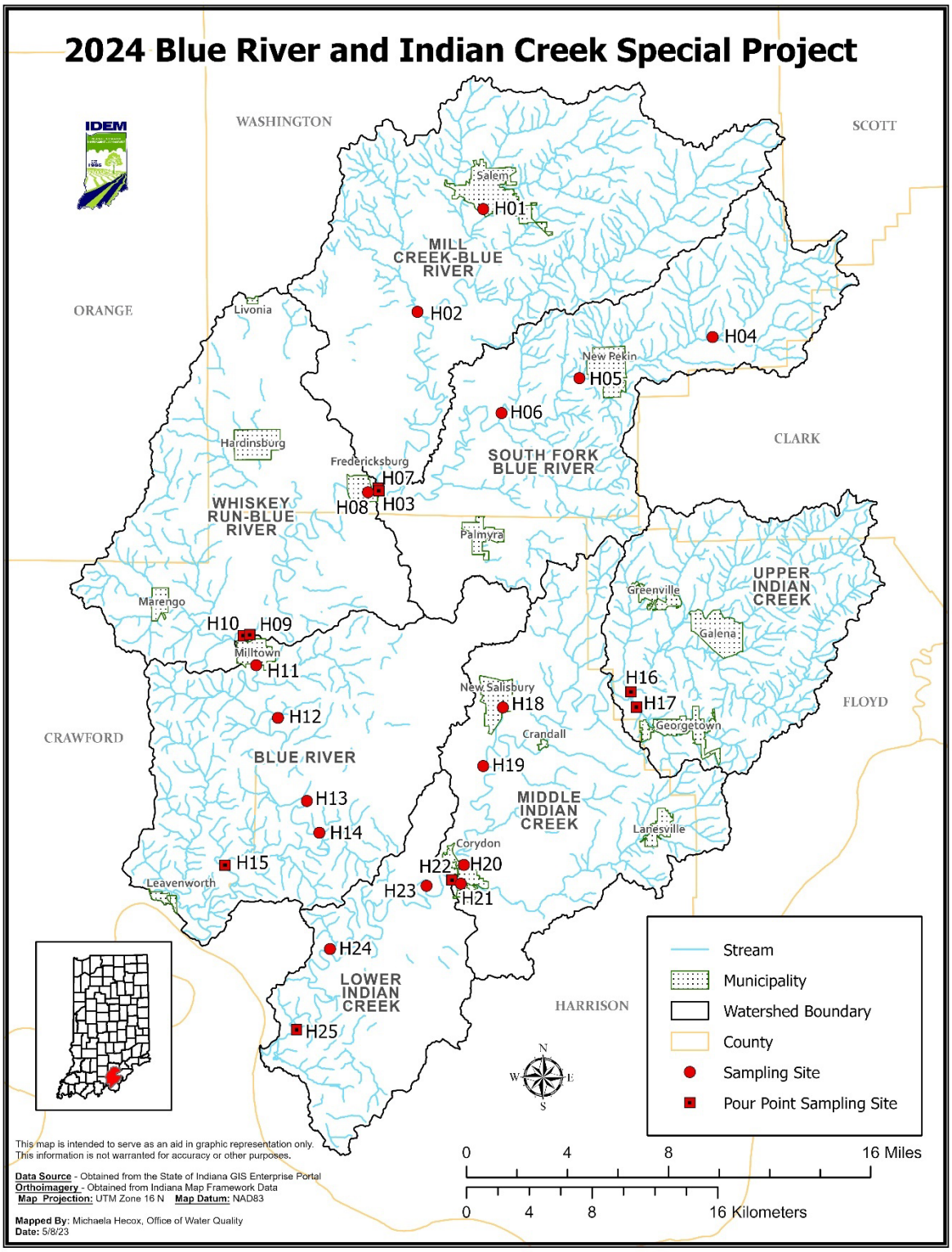
The water quality data generated from this monitoring effort is anticipated to provide information needed to characterize the targeted watersheds, to identify sources of impairment, to find improvements in water quality, and to enable RCPP project partners to make valid and informed watershed management decisions. By design, this project also adds new stream reaches, which allow for assessment of aquatic life use support and future comparisons to evaluate changes in water quality.

The 303(d) list submitted to the U.S. EPA (IDEM 2022a) identifies a total of 335.56 miles of Category 5 impaired streams in the Blue River and Indian Creek watersheds. The total number of miles per each impairment in the combined watersheds is reported in the following ways:

- *Escherichia coli (E. coli)*, 216.04 miles
- PCBs in fish tissue, 123.22 miles
- Impaired biotic community (IBC), 91.45 miles
- Nutrients, 85.28 miles
- Dissolved oxygen, 6.75 miles

Multiple IDEM programs and projects have collected assessment data in this watershed.

**Figure 1. Location of Sampling Sites in the Blue River and Indian Creek Special Project.**




[1]Map site numbers refer to Site # from Table 1.

**Table 1. Sampling Locations for 2024 Blue River and Indiana Creek Special Project**

| Site #[1] | EPA Site ID[2] | IDEM Station ID | Stream Name | Location | County | Latitude | Longitude | AUID |
|---|---|---|---|---|---|---|---|---|
| H01 | 23H-001 | OBS-07-0024 | West Fork Blue River | Joseph Street | Washington | 38.5957 | -86.1058 | INN0473_02 |
| H02 | 23H-002 | OBS-07-0006 | Mill Creek | Becks Mill Road | Washington | 38.53707 | -86.1545 | INN0474_04 |
| H03 | 24H-003 | OBS-07-0015 | Blue River | Fredericksburg Road | Washington | 38.436 | -86.1844 | INN0476_02 |
| H04 | 24H-004 | OBS-06-0002 | South Fork Blue River | Bowers Knob Road | Washington | 38.52085 | -85.9391 | INN0461_04 |
| H05 | 24H-005 | OBS-06-0004 | South Fork Blue River | Martinsburg Road | Washington | 38.49807 | -86.0368 | INN0464_01 |
| H06 | 24H-006 | OBS-06-0008 | South Fork Blue River | SR 135 | Washington | 38.47851 | -86.0938 | INN0464_03 |
| H07 | 24H-007 | OBS130-0002 | South Fork Blue River | Fredericksburg Road | Washington | 38.43457 | -86.1839 | INN0466_09 |
| H08 | 24H-008 | OBS140-0004 | Blue River | US 150 | Washington | 38.43375 | -86.1919 | INN0485_02 |
| H09 | 24H-009 | OBS-08-0002 | Whiskey Run | Milltown Road | Crawford | 38.35205 | -86.2837 | INN0484_10 |
| H10 | 24H-010 | OBS-08-0003 | Blue River | SR 64 | Crawford | 38.35263 | -86.279 | INN0485_10 |
| H11 | 24H-011 | OBS-09-0005 | Blue River | Hill View Road | Harrison | 38.33502 | -86.2745 | INN0491_03 |
| H12 | 24H-012 | OBS-09-0006 | Blue River | Riparian Way | Harrison | 38.30477 | -86.2589 | INN0493_02 |
| H13 | 24H-013 | OBS-09-0007 | Blue River | Moberly Road | Harrison | 38.257 | -86.2383 | INN0493_05 |
| H14 | 24H-014 | OBS150-0014 | Harrison Spring | Harrison Spring Road | Harrison | 38.23867 | -86.2294 | INN0492_01 |
| H15 | 24H-015 | OBS150-0008 | Blue River | SR 62 | Crawford | 38.22041 | -86.2983 | INN0495_06 |
| H16 | 24H-016 | OBS080-0005 | Indian Creek | Georgetown Greenville Road | Floyd | 38.31779 | -86.0016 | INN0434_01 |
| H17 | 24H-017 | OBS-03-0003 | Georgetown Creek | Malinee Ott Road | Floyd | 38.30896 | -85.9977 | INN0434_T1013 |
| H18 | 24H-018 | OBS-04-0005 | Tributary of Indian Creek | Spring Branch Road | Harrison | 38.30959 | -86.095 | INN0443_T1003 |
| H19 | 24H-019 | OBS-04-0008 | Indian Creek | SR 335 | Harrison | 38.275515 | -86.106778 | INN0443_02 |
| H20 | 24H-020 | OBS-04-0006 | Indian Creek | Old North Bridge Road | Harrison | 38.21938 | -86.1244 | INN0443_05 |
| H21 | 24H-021 | OBS-04-0007 | Little Indian Creek | Poplar Street | Harrison | 38.2087 | -86.1268 | INN0442_05 |
| H22 | 24H-022 | OBS100-0007 | Indian Creek | Indian Creek Trail | Harrison | 38.21088 | -86.1333 | INN0452_01 |
| H23 | 24H-023 | OBS-05-0004 | Indian Creek | West Heidelburg Road | Harrison | 38.20771 | -86.1518 | INN0452_02 |
| H24 | 24H-024 | OBS-05-0005 | Indian Creek | Dixie Road | Harrison | 38.1719 | -86.2224 | INN0452_05 |
| H25 | 24H-025 | OBS100-0006 | Indian Creek | Lickford Bridge Road | Harrison | 38.12575 | -86.2472 | INN0452_07 |

[1] H## gray shading of the Site # denotes these are the selected pour points for this project (9 sites).

[2] Sites 24H-004 and 24H-006 serve as sites in the 2024 Performance Monitoring Project.

## A.2. Project Organization and Schedule

Sampling of waterbodies in the target watersheds will occur between November 2023 and October 2024. Barring any hazardous weather conditions or unexpected physical barriers to access a site, sampling activities will be conducted for physical, chemical, and biological communities. Project laboratory processing and data analyses will continue through the spring of 2025.

Sampling activity timeframes include:

1. Site reconnaissance activities were completed in February and March 2023. Reconnaissance activities were conducted in the office and through physical site visits. Activities included visiting access sites at bridge crossings and seeking landowner approval to safely access the sampling location along the stream and determining the appropriate equipment.
2. Monthly water chemistry and pesticide sampling will occur at all watershed sites during the recreational season, April through October, as defined by Indiana Administrative Code (IAC) [327 IAC 2-1-6]. During the months of November through March, monthly water chemistry sampling will occur only at the pour point sites of each 10-digit HUC (nine sites). Pesticide sampling will not occur for the pour point sites outside the recreational season. The first sampling event will occur in November 2023; and the study concludes in October 2024. In-situ dissolved oxygen (DO), DO percent saturation, pH, temperature, specific conductance, and turbidity readings will be collected during sampling events using a data sonde.
3. Biological sampling activities will begin in the summer of 2024 according to the designated index period for macroinvertebrates. Macroinvertebrate community sampling will be conducted at all watershed sites via the observation, counting, and collection techniques described in section B.2. Sampling Methods and Sample Handling. Qualitative habitat assessments will also be assessed at all watershed sites.

## A.3. Background and Project Description

This watershed study was instituted to support Purdue University's project proposal to the Natural Resources Conservation Service's (NRCS) Regional Conservation Partnership Program (RCPP), titled "Farmers Helping Hellbenders Initiative." IDEM will share the watershed data set with Purdue University, local watershed groups, and other interested parties. The monitoring will provide baseline data of current watershed conditions to aid in watershed planning, conservation efforts, and future evaluations of changes within the basin.

The state of Indiana is tasked with restoring and maintaining the chemical, physical, and biological integrity of the waters of the state [327 IAC 2-1-1.5]. Data collected will be used to assess Indiana's surface water quality pursuant to the Clean Water Act Section 305(b).

## A.4. Data Quality Objectives

The DQO process (U.S. EPA 2006) is a tool for planning data collection activities. The process provides a basis for balancing decision uncertainty with available resources. All significant data collection projects require the DQO process. The DQO process is a seven-step systematic planning process used to clarify study objectives; define the types of data needed to achieve the objectives; and establish decision criteria for evaluating data quality. The following seven sections document the results of the DQO seven step process for the 2024 Blue River and Indian Creek Special Project.

1. State the Problem
   Indiana Administrative Code requires Indiana to assess all waters of the state to determine their designated use attainment status. Surface waters of the state are designated for full-body contact recreation; will be capable of supporting a well-balanced, warm water aquatic community; [327 IAC 2-1-3]. This study gathers biological (macroinvertebrate), habitat, and in-situ chemistry data for the purpose of assessing the designated use attainment status of the AUID segments on waterbodies in the target watersheds. Purdue University is seeking a partner to collect water quality data in targeted watersheds that are identified as current or potential habitat for the state endangered eastern hellbender. This study will provide water quality baseline data in the Blue River and Indian Creek watersheds to aid in their conservation efforts of the eastern hellbender.
2. Identify the Goals of the Study
   The goal of this study is to fully assess whether the surface waters in the watersheds are supporting or nonsupporting for aquatic life use. The intensive sampling of the Blue River and Indian Creek Watersheds Study also provides baseline data of the watersheds that will aid in conservation efforts for the eastern hellbender. The baseline data will also be shared with local stakeholders for watershed planning and restoration activities.
3. Identify Information Inputs

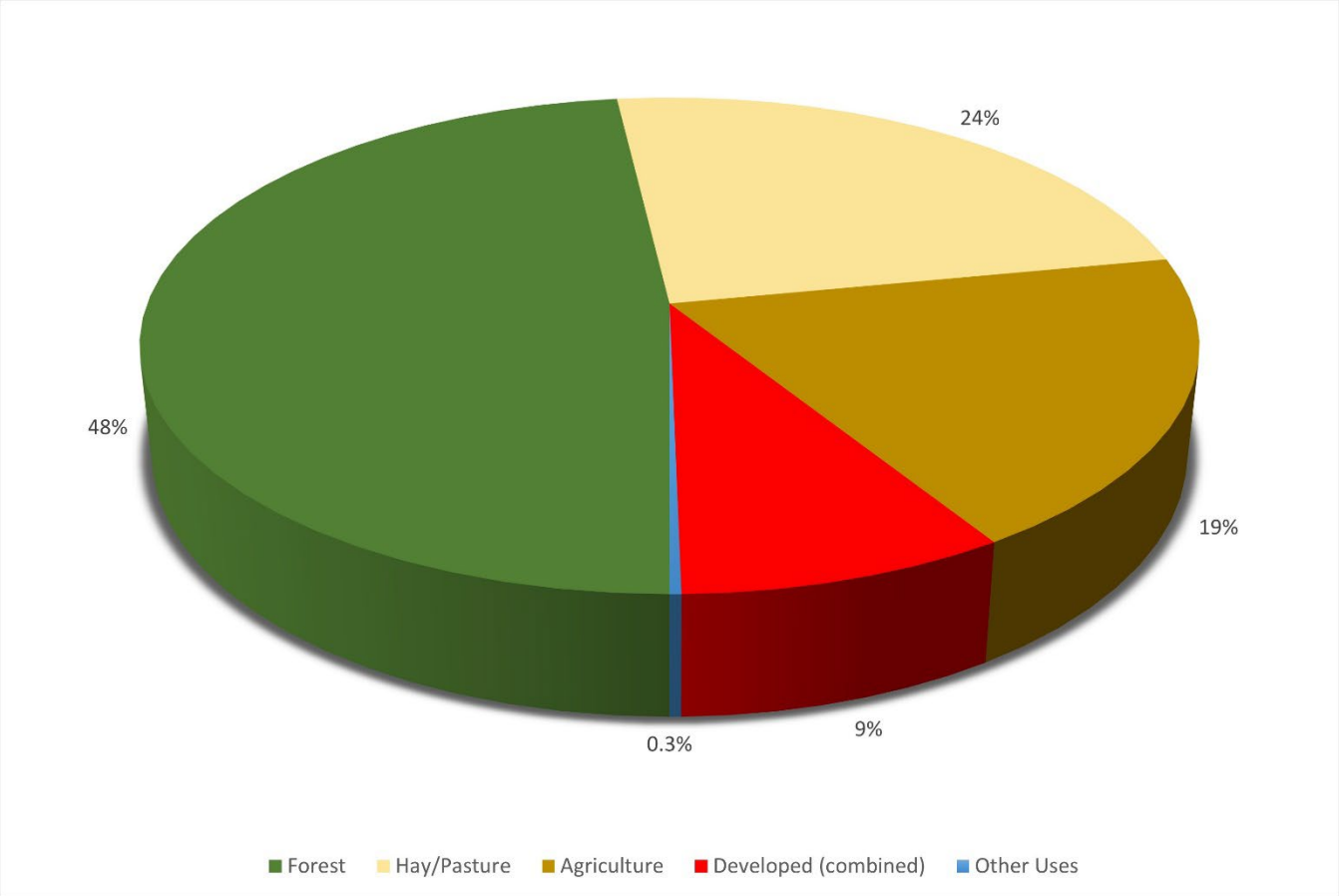
   Collection of surface water quality grab samples will be collected from the sampling locations listed in Table 1. Parameters to be analyzed and field measurements can be found in Section B. Data Generation and Acquisition. Visual field observations will include weather conditions, stream conditions, and percent stream canopy at each sampling location. Pace Analytical Services will process and analyze water chemistry samples using the analytical methods found in Section B. Data Generation and Acquisition. The Office of Indiana State Chemist will process and analyze pesticides using the analytical methods found in Section B. Data Generation and Acquisition. A macroinvertebrate community sample and the habitat evaluation will be collected once at each site. Section B. Data Generation and Acquisition describes in detail the collection procedures for in-situ water chemistry measurements, biological, and habitat data.

4. Define the Boundaries of the Study

Figure 1 provides a spatial representation of the 2024 Blue River and Indian Creek Special Project. Table 1 lists the sampling locations in the study area. The target sample population for the study is defined as all perennial streams in the Blue River and Indian Creek watersheds that lie within the geographic boundaries of Indiana. The sample frame is comprised of all rivers, streams, canals, and ditches as indexed through the NHDPlus HR dataset (Moore et al. 2019).

The Blue River and Indian Creek watersheds collectively cover 779.16 square miles in Washington, Harrison, Crawford, and Floyd counties. The collective watersheds are approximately 48% forest, 24% hay or pasture, 19% agriculture, 9% developed land (combined types), less than 1% shrub or scrub, wetlands, and open water as illustrated in Figure 2.

**Figure 2. Blue River and Indian Creek Special Project Land Use**




[1] Data collected and calculated from USDA National Agricultural Statistics Service 2022 Cropland Data Layer

5. Develop the Analytical Approach

   Samples will be collected for physical, chemical, and biological communities when the flow rate and level of the stream are safe for staff to enter. Considerations include times when water levels are at or above median base flow, when hazardous weather conditions like thunderstorms and heavy rain are in the vicinity, and when unexpected

physical barriers prevent access to the site. The field crew chief makes the final determination when the stream is safe to enter. Sample collections for biological communities may be postponed due to a high-water event which may cause the scouring of the stream substrate or instream cove, which may result in samples that are not representative.

For assessment purposes in the integrated report, aquatic life use support decisions will include independent evaluations of chemical and biological criteria as outlined in Indiana's 2022 Consolidated Assessment Listing Methodology (CALM) (IDEM 2022a). Macroinvertebrate multihabitat samples will be evaluated using a statewide macroinvertebrate index of biotic integrity (mIBI) developed for lowest practical taxonomic level identifications. Specifically, a site will be considered nonsupporting for aquatic life use when mIBI scores are less than 36.

General chemistry and nutrient parameters will be analyzed by Pace Analytical Services. The nutrient and general chemistry parameters and respective test methods can be found in Section B. Data Generation and Acquisition. Pesticide parameters will be analyzed by the Office of Indiana State Chemist. The pesticide parameters and respective test methods can be found in Section B. Data Generation and Acquisition. Field parameters (DO, pH, water temperature, specific conductance, and DO percent saturation) will be measured with a data sonde and turbidity will be measured with a Hach™ turbidity kit.

6. Specify Performance or Acceptance Criteria
   Utilizing a comprehensive checklist of informational sources, evaluation of historical information, and a thorough watershed presurvey minimizes sampling design error. The sampling design is 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. Place more confidence in the conclusions drawn on the stressors and sources affecting the water quality by minimizing both sampling design error and measurement error for physical and biological parameters.

   Site specific aquatic life use assessments include program specific controls to identify the introduction of errors. These controls include blanks and duplicates for water chemistry samples; biological site revisits or duplicates; and laboratory controls through verification of species identifications as described in field procedure manuals (IDEM 2023c, 2020a, 2020b, 2020c, 2023d, 2023a).

   The quality assurance and quality control (QA/QC) process detects deficiencies in the data collection as set forth in the Surface Water QAPP (IDEM 2023a) and QAPP for Biological Community and Habitat Measurement (Biological and Habitat QAPP) (2020a). The QAPPs require all contract laboratories to adhere to rigorous standards during sample analyses and to provide good quality usable data. Laboratory accreditations are reviewed and verified before awarding the contract through the RFP process and before beginning the project. Performance studies are reviewed annually in

October. Chemists within the WAPB review the laboratory analytical results for quality assurance. The QA/QC for each data set is compared against acceptance limits specified in the laboratory methods, the laboratory's QA manual, the Surface Water QAPP Section D.3.2 Laboratory Quality Control Checks and Compliance, and the Surface Water QAPP Section D.3. Reconciliation with User Requirements. Data is validated based on the QA/QC review. Any data which is "rejected" due to analytical problems or errors for water quality assessment decisions is not used. Any data flagged as "estimated" is used on a case-by-case basis and noted in the QA/QC reports. The Surface Water QAPP, Tables 28 and 29: Data Qualifiers and Flags (IDEM 2023a p 106) and Biological and Habitat QAPP (IDEM 2020a pp 32–36) present criteria for acceptance or rejection of results as well as application of data quality flags. The Surface Water QAPP Table 3: Performance, Acceptance, Decision Criteria for this Study; and Table 14 Field Parameters showing method and IDEM quantification limit (IDEM 2023a, pp 37 and p 91) provide precision and accuracy goals with acceptance limits for applicable analytical methods.

Consistent "rejected" data is further investigated to determine the source of error and for corrective actions. Field techniques used during sample collection and preparation, along with laboratory procedures, are subject to evaluation by both the WAPB QA manager and project manager to troubleshoot error introduced throughout the entire data collection process. Corrective actions are implemented upon determination of the source of error per the Surface Water QAPP (IDEM 2023a) and Biological Community and Habitat QAPP (IDEM 2020a).

Evaluate sites as supporting or nonsupporting following the decision-making processes described in Indiana's 2022 Consolidated Assessment Listing Methodology (CALM) and based upon the water quality criteria shown in Table 1.

Aquatic life use support decisions will include independent evaluations of biological and chemical data. Evaluate macroinvertebrate multihabitat (MHAB) samples using a statewide Index of Biotic Integrity (IBI) developed for lowest practical taxonomic level identifications.

Indiana narrative biological criteria [327 IAC 2-1-3] states "(2) All waters, except [limited use waters] will be capable of supporting: (A) a well-balanced, warm water aquatic community." The water quality standard definition of a "well-balanced aquatic community" is "[327 IAC 2-1-9 (59)] An aquatic community which: (A) is diverse in species composition; (B) contains several different trophic levels; and (C) is not composed mainly of pollution tolerant species." An interpretation or translation of narrative biological criteria into numeric criteria would be as follows: A stream segment is nonsupporting for aquatic life use when the monitored macroinvertebrate community receives a mIBI score of less than 36 on a scale of 12-60, which is considered "poor" or "very poor" (IDEM 2022a).

In addition to chemical parameters, data for several nutrient parameters will be evaluated with the benchmarks listed below (IDEM 2022a). Assuming a minimum of

three sampling events, if two or more of the conditions below are met on the same date, the waterbody will be classified as nonsupporting due to excessive nutrients:

- Total phosphorus (TP):
  - One or more measurements greater than 0.3 mg/L
- Nitrogen (measured as Nitrate + Nitrite):
  - One or more measurements greater than 10.0 mg/L
- Dissolved oxygen (DO):
  - Any measurement less than 4.0 mg/L
  - Any measurements consistently at or close to the standard, in the range of 4.0-5.0 mg/L
  - Any dissolved oxygen percent saturation measurement greater than 120%
- pH:
  - One of more measurements greater than 9.0 SU
  - Measurements consistently at or close to the standard, in the range of 8.7-9.0 SU
- Algal conditions:
  - Visually observed as “excessive” by trained staff using best professional judgment.

Assessments of each site sampled will be reported to U.S. EPA in the 2026 update of Indiana’s Integrated Water Monitoring and Assessment Report (Integrated Report). Site-specific data is used to classify associated assessment units into one of five major categories in the State’s Consolidated 303(d) list. Category definitions are available in Indiana’s CALM (IDEM 2022c, pp G-33, G-34).

**Table 2. Water Quality Criteria [327 IAC 2]**

| Parameters | Water Quality Criteria | Criterion |
|---|---|---|
| Total ammonia ($NH_3$-N) | Calculate based on pH and temperature | Calculate CAC |
| Nitrate+Nitrite-Nitrogen | ≤10 mg/L | Human health point of drinking water intake |
| Sulfate | Calculate based on hardness and chloride | In all waters outside the mixing zone |
| Dissolved oxygen | At least 5.0 mg/L (warm waters) | Daily average |
| | Not less than 4.0 mg/L at any time | Single reading |
| pH | 6.0 – 9.0 S.U. except for daily fluctuations which exceed 9.0 due to photosynthetic activity | Single reading |
| Temperature | Varies monthly | 1% annual; maximum limits |

| Parameters | Water Quality Criteria | Criterion |
|---|---|---|
| Chloride | Calculate based on hardness and sulfate values | Calculate CAC |
| Dissolved solids | 750 mg/L | Public water supply |

CAC = Chronic Aquatic Criterion, S.U. = Standard Units

7. Develop the Plan for Obtaining Data
   Site selection will be determined primarily on stakeholder interest. A work group comprised of interested stakeholders will be formed to determine where stakeholders would like to receive water quality data. Additional sites will be strategically placed at bridges nearest to the pour point of each 10-digit HUC in the watershed. Sample sites at road crossings allow for more efficient sampling of the watersheds.

## A.5. Training and Staffing Requirements

**Table 3. Project Roles, Experience, and Training**

| Role | Required Training or Experience | Responsibilities | Training References |
|---|---|---|---|
| Project manager | - Assessment Information Management System (AIMS) II database experience<br>- Demonstrated experience in project management and QA/QC procedures | - Establish project in the AIMS II database.<br>- Oversee development of project work plan.<br>- Oversee entry and QC of field data.<br>- Query data from AIMS II to determine results not meeting water quality criteria. | - IDEM 2023a, 2020a, 2020c, 2022c<br>- U.S. EPA 2006 |
| Field crew chief biological community sampling | - At least one year of experience in sampling methodology and taxonomy of aquatic communities in the region<br>- Annually review relevant safety procedures.<br>- Annually review relevant Standard Operating Procedure (SOP) documents for field operations. | - Complete field data sheets.<br>- Taxonomic accuracy.<br>- Sampling efficiency and representation.<br>- Voucher specimen tracking.<br>- Overall operation of the field crew when remote from central office.<br>- Adherence to safety and field SOP procedures by crew members.<br>- Ensure multiprobe analyzers are calibrated weekly prior to field sampling activities.<br>- Ensure field sampling equipment is functioning properly and loaded into field vehicles prior to field sampling activities. | - IDEM 2008, 2010a, 2010b, 2023a, 2019b, 2020a, 2020c, 2022a, 2023b, 2023c, 2023d<br>- IDEM 2019a and 2021b<br>- Xylem Inc. 2017, 2018 |

| Role | Required Training or Experience | Responsibilities | Training References |
|---|---|---|---|
| Field crew members biological community sampling | - Complete hands-on training for sampling methodology prior to participation in field sampling activities.<br>- Review relevant safety procedures.<br>- Review relevant SOP documents for field operations. | - Follow all safety and SOP procedures while engaged in field sampling activities.<br>- Follow direction of field crew chief while engaged in field sampling activities. | - IDEM 2008, 2010a, 2010b, 2023a, 2019a, 2020a, 2020c, 2022a, 2023b, 2023c, 2023d<br>- IDEM 2019a and 2021b<br>- Xylem Inc. 2017, 2018 |
| Field crew chief – water chemistry | - At least one year of experience in sampling methodology<br>- Annually review relevant safety procedures.<br>- Annually review relevant SOP documents for field operations. | - Complete field data sheets.<br>- Sampling efficiency and representation.<br>- Overall operation of the field crew when remote from central office.<br>- Adherence to safety and field SOP procedures by crew members.<br>- Ensure multiprobe analyzers are calibrated weekly prior to field sampling activities.<br>- Ensure field sampling equipment is functioning properly and loaded into field vehicles prior to field sampling activities. | - IDEM 2008, 2010a, 2010b, 2023a, 2019a, 2020b 2020c, 2022a, 2023b<br>- Xylem Inc. 2017, 2018 |
| Field crew members – water chemistry sampling | - Complete hands-on training for sampling methodology prior to participation in field sampling activities.<br>- Review relevant safety procedures.<br>- Review relevant SOP documents for field operations. | - Follow all safety and SOP procedures while engaged in field sampling activities.<br>- Follow direction of field crew chief while engaged in field sampling activities. | - IDEM 2008, 2010a, 2010b, 2023a, 2019a, 2020b, 2020c, 2022a, 2023b<br>- Xylem Inc. 2017, 2018 |
| Laboratory supervisor – biological community sample processing | - At least one year of experience in taxonomy of aquatic communities in the region<br>- Annually review relevant safety procedures.<br>- Annually review relevant SOP documents for laboratory operations. | - Adherence to safety and SOP procedures by laboratory staff.<br>- Identification of macroinvertebrate specimens collected during field sampling.<br>-Completion of laboratory data sheets<br>- Verify taxonomic accuracy of samples.<br>- Voucher specimen tracking. | - IDEM 2008, 2010a, 2010b, 2023a, 2019a, 2019b, 2020a, 2022c<br>- IDEM 2019a and 2021b |

| Role | Required Training or Experience | Responsibilities | Training References |
|---|---|---|---|
| | | - Ensure QC calculations on data sheets.<br>-Check data for completeness.<br>- Ensure data are entered into AIMS II database correctly. | |
| Laboratory staff – biological community sample processing | - Complete hands-on training for laboratory sample processing methodology prior to laboratory sample processing activities.<br>- Annually review relevant safety procedures<br>- Annually review relevant SOP documents for laboratory operations. | -Adherence to safety and SOP procedures by laboratory staff<br><br>- Follow laboratory supervisor direction while processing samples.<br>- Identify macroinvertebrate specimens.<br>- Perform necessary calculations on data and enter field sheets. | - IDEM 2008, 2010a, 2010b, 2023a, 2019a, 2019b, 2020a, 2022c<br>- IDEM 2019a and 2021b |
| Laboratory supervisor – water chemistry sample processing | - Annually review relevant safety procedures.<br>- Annually review relevant SOP documents for field operations. | -Adherence to safety and SOP procedures by laboratory staff<br><br>- Completion of laboratory data sheets.<br>- Check data for completeness.<br>- Perform all necessary calculations on the data.<br>- Ensure data are entered into the AIMS II database.<br>-Ensure that required QA/QC are performed on the data<br><br>-Querying data from AIMS II to determine results not meeting water quality criteria | - IDEM 2008, 2010a, 2010b, 2023a, 2019a, 2019b, 2020b, 2022c<br>- IDEM 2019a and 2021b |
| Quality assurance officer | - Familiarity with QA/QC practices and methodologies<br>- Familiarity with the Surface Water QAPP and data qualification methodologies | - Ensure adherence to QA/QC requirements of Surface Water QAPP.<br>- Evaluate data collected by sampling crews for adherence to project work plan.<br>- Review data collected by field sampling crews for completeness and accuracy. | - IDEM 2023a, 2020a, 2022c<br>- U.S. EPA 2006 |

| Role | Required Training or Experience | Responsibilities | Training References |
|---|---|---|---|
| | | - Perform a data quality analysis of data generated by the project.<br>- Assign data quality levels based on the data quality analysis.<br>- Import data into the AIMS II database.<br>- Ensure field sampling methodology audits are completed according to WAPB procedures. | |

# B. Data Generation and Acquisition

## B.1. Sampling Sites and Sampling Design

The Blue River and Indian Creek Watersheds study is designed to obtain spatial coverage of major tributaries to allow for comparison between the two watersheds, while also including sites of special interest by local stakeholders. Sites were selected at the pour points of 10-digit HUCs and a work group was comprised of interested stakeholders to determine additional targeted sites. This work group was comprised of IDEM staff, Purdue Extension wildlife specialists, and watershed specialists from The Nature Conservancy (TNC), Washington County Soil and Water Conservation District (SWCD), and the Natural Resource Conservation Service (NRCS).

Site reconnaissance activities were completed in February and March of 2023 through physical site visits. Activities included preparation and review of site maps and aerial photographs. Physical site visits included verification of accessibility, recording safety considerations, determining equipment needed to properly sample the site, and consultations with property owners, if required. All information was recorded on the IDEM Office of Water Quality (OWQ) Site Reconnaissance Form (Attachment 1) and entered into the AIMS II database. Precise coordinates were recorded for each site during the physical site visits. An agency approved handheld Global Positioning System (GPS) unit was used to verify horizontal precision within five meters or less (IDEM 2022b) and entered into the AIMS II database. Digital photos were taken upstream and downstream of the site and labeled with the site number and indication of whether the photo faces upstream or downstream. Digital photos are stored in the project folder on the shared drive.

Table 1 provides a list of the selected sampling sites with the stream name, Assessment Unit IDs (AUID), AIMS Site Number, county name, and the latitude and longitude of each site. Figure 1 gives a spatial overview of the site locations for this project.

## B.2. Sampling Methods and Sample Handling

1. Water Chemistry Sampling
   One team of two staff will collect water chemistry grab samples, record water chemistry field data measurements, and physical site descriptions on the IDEM OWQ Stream Sampling Field Data Sheet (Attachment 2). All water chemistry sampling will adhere to the Water Chemistry Field Sampling Procedures (IDEM 2020b). Water chemistry samples will be preserved as specified in Table 4 and follow all applicable holding times.

**Table 4. Water Chemistry Sample Handling**

| Parameter | Preservative | Holding Times |
|---|---|---|
| Alkalinity (as $CaCO_3$) | Ice | 14 days |
| Solids, total residue (TS) | Ice | 7 days |
| Solids, nonfilterable residue (TSS) | Ice | 7 days |
| Solids, filterable residue (TDS) | Ice | 7 days |
| Sulfate (dissolved) | Ice | 28 days |
| Chloride | Ice | 28 days |
| Hardness (as $CaCO_3$) | $HNO_3$ | 6 months |
| Nitrogen, as ammonia | $H_2SO_4$ | 28 days |
| Nitrogen, Kjeldahl (TKN) | $H_2SO_4$ | 28 days |
| Nitrogen, nitrate+nitrite | $H_2SO_4$ | 28 days |
| Phosphorous (applicable to all) | $H_2SO_4$ | 28 days |
| Total organic carbon (TOC) | $H_2SO_4$ | 28 days |
| Chemical oxygen demand | $H_2SO_4$ | 28 days |
| Calcium | $HNO_3$ | 6 months |
| Magnesium | $HNO_3$ | 6 months |
| 2,4,5-T | None | 48 hours |
| 2,4,5-TP | None | 48 hours |
| 2,4-D | None | 48 hours |
| 2,4-DB | None | 48 hours |
| 2,4-DP | None | 48 hours |
| Acetamiprid | None | 48 hours |
| Acetochlor ESA | None | 48 hours |
| Acetochlor OA | None | 48 hours |
| Acifluorfen | None | 48 hours |
| Afidopyropen | None | 48 hours |
| Alachlor ESA | None | 48 hours |

| | | |
|---|---|---|
| Alachlor OA | None | 48 hours |
| Aldicarb Sulfone | None | 48 hours |
| Aldicarb Sulfoxide | None | 48 hours |
| Aminopyralid | None | 48 hours |
| Azoxystrobin | None | 48 hours |
| Bensulfuron Methyl | None | 48 hours |
| Bensulide | None | 48 hours |
| Bentazon | None | 48 hours |
| Bentazon AIBA | None | 48 hours |
| Bicyclopyrone | None | 48 hours |
| Bicyclopyrone SYN503780 | None | 48 hours |
| Bixafen | None | 48 hours |
| Boscalid | None | 48 hours |
| Bromacil | None | 48 hours |
| Carbaryl | None | 48 hours |
| Carbendazim | None | 48 hours |
| Carbofuran | None | 48 hours |
| Chloramben | None | 48 hours |
| Chlorantraniliprole | None | 48 hours |
| Chlorimuron Ethyl | None | 48 hours |
| Chlorpyrifos Oxon | None | 48 hours |
| Clethodim Sulfone | None | 48 hours |
| Clethodim Sulfoxide | None | 48 hours |
| Clopyralid | None | 48 hours |
| Cloransulam Methyl | None | 48 hours |
| Clothianidin | None | 48 hours |
| Cyanazine | None | 48 hours |
| Cyanazine Acid | None | 48 hours |
| Cyanazine Amide | None | 48 hours |
| Cyantraniliprole | None | 48 hours |
| Cyclaniliprole | None | 48 hours |
| Cyprosulfamide | None | 48 hours |
| Deethylcyanazine | None | 48 hours |
| Deethylcyanazine Acid | None | 48 hours |
| Deethylcyanazine Amide | None | 48 hours |
| Deisopropylatrazine | None | 48 hours |
| Diamino-Atrazine | None | 48 hours |
| Dicamba | None | 48 hours |
| Dicrotophos | None | 48 hours |
| Didealkylatrazine | None | 48 hours |
| Difenoconazole | None | 48 hours |

| | | |
|---|---|---|
| Dimethenamid ESA | None | 48 hours |
| Dimethenamid OA | None | 48 hours |
| Dimethoate | None | 48 hours |
| Dinotefuran | None | 48 hours |
| Disulfoton Sulfone | None | 48 hours |
| Diuron | None | 48 hours |
| Flumetsulam | None | 48 hours |
| Flupyradifurone | None | 48 hours |
| Fluroxypyr | None | 48 hours |
| Flutriafol | None | 48 hours |
| Fluxapyroxad | None | 48 hours |
| Fomesafen | None | 48 hours |
| Halauxifen Acid | None | 48 hours |
| Halauxifen Methyl | None | 48 hours |
| Halosulfuron Methyl | None | 48 hours |
| Hexazinone | None | 48 hours |
| Hydroxyatrazine | None | 48 hours |
| Imazamethabenz Acid | None | 48 hours |
| Imazamethabenz Methyl | None | 48 hours |
| Imazamox | None | 48 hours |
| Imazapic | None | 48 hours |
| Imazapyr | None | 48 hours |
| Imazaquin | None | 48 hours |
| Imazethapyr | None | 48 hours |
| Imidacloprid | None | 48 hours |
| Imidacloprid Olefin | None | 48 hours |
| Imidacloprid Urea | None | 48 hours |
| Inpyrfluxam | None | 48 hours |
| Isoxaflutole | None | 48 hours |
| Isoxaflutole DKN | None | 48 hours |
| Linuron | None | 48 hours |
| Mandestrobin | None | 48 hours |
| MCPA | None | 48 hours |
| MCPB | None | 48 hours |
| MCPP | None | 48 hours |
| Mefentrifluconazole | None | 48 hours |
| Mesotrione | None | 48 hours |
| Metalaxyl | None | 48 hours |
| Metconazole | None | 48 hours |
| Methiozolin | None | 48 hours |
| Metolachlor ESA | None | 48 hours |

| | | |
|---|---|---|
| Metolachlor OA | None | 48 hours |
| Metribuzin DA | None | 48 hours |
| Metribuzin DK | None | 48 hours |
| Metsulfuron Methyl | None | 48 hours |
| Momfluorothrin | None | 48 hours |
| Myclobutanil | None | 48 hours |
| Nicosulfuron | None | 48 hours |
| Norflurazon | None | 48 hours |
| Norflurazon Desmethyl | None | 48 hours |
| Oxathiapiprolin | None | 48 hours |
| Oxydemeton Methyl | None | 48 hours |
| Parathion Methyl Oxon | None | 48 hours |
| Picarbutrazox | None | 48 hours |
| Picarbutrazox TZ-1E | None | 48 hours |
| Picloram | None | 48 hours |
| Picoxystrobin | None | 48 hours |
| Prometryn | None | 48 hours |
| Propiconazole | None | 48 hours |
| Prothioconazole-desthio | None | 48 hours |
| Pydiflumetofen | None | 48 hours |
| Pyraclostrobin | None | 48 hours |
| Pyridafol | None | 48 hours |
| Pyrimisulfan | None | 48 hours |
| Pyroxasulfone | None | 48 hours |
| Saflufenacil | None | 48 hours |
| Siduron | None | 48 hours |
| Sulfentrazone | None | 48 hours |
| Sulfentrazone-3-carboxylic acid | None | 48 hours |
| Sulfometuron Methyl | None | 48 hours |
| Tebuconazole | None | 48 hours |
| Tembotrione | None | 48 hours |
| Tetraconazole | None | 48 hours |
| Tetraniliprole | None | 48 hours |
| Tetraniliprole quinazolinone | None | 48 hours |
| Thiacloprid | None | 48 hours |
| Thiamethoxam | None | 48 hours |
| Thiencarbazone methyl | None | 48 hours |
| Thifensulfuron Methyl | None | 48 hours |
| Thiobencarb | None | 48 hours |
| Tolpyralate | None | 48 hours |
| Topramezone | None | 48 hours |

| | | |
|---|---|---|
| Triasulfuron | None | 48 hours |
| Triclopyr | None | 48 hours |

2. Macroinvertebrate Community Measurements
   Aquatic benthic macroinvertebrate samples are collected using a modification of the U.S. EPA Rapid Bioassessment Protocol multihabitat (MHAB) approach using a D-frame dip net (Plafkin et al. 1989; Barbour et al. 1999; Klemm et al. 1990; IDEM 2023c). The IDEM MHAB approach (IDEM 2023c) is composed of a 1-minute “kick” sample within a riffle, if a riffle is present in the sample reach. A kick sample is collected by disturbing one square meter of stream bottom substrate in a riffle or run habitat and collecting the dislodged macroinvertebrates within the dipnet. A 50-meter “sweep” sample of additional instream habitats is collected by disturbing habitats such as emergent vegetation, root wads, coarse particulate organic matter, depositional zones, logs, and sticks and collecting the dislodged macroinvertebrates within the dipnet. The 50-meter length of riparian corridor sampled at each site will be defined using a tape measure or rangefinder. If the stream is too deep to wade, a boat will be used to sample the 50-meter zone along the shoreline that has the best available habitat. The 1-minute “kick” (if collected) and 50-meter “sweep” samples are combined in a bucket of water. The sample will be elutriated through a U.S. standard number 35 (500 µm) sieve a minimum of five times so that all rocks, gravel, sand, and large pieces of organic debris are removed from the sample. The remaining sample is then transferred from the sieve to a white plastic tray. The collector (while still onsite) will conduct a 15-minute pick of macroinvertebrates at a single organism rate with an effort to pick for maximum organism diversity and relative abundance through turning and examination of the entire sample in the tray. The resulting picked sample will be preserved in 80% isopropyl alcohol, returned to the laboratory for identification at the lowest practical taxonomic level, (genus or species level when possible) and evaluated using the MHAB macroinvertebrate IBI (IDEM 2023e).

3. Habitat Assessments
   Habitat assessments will be completed immediately following macroinvertebrate community sample collections at each site using a slightly modified version of the Ohio Environmental Protection Agency (OHEPA) Procedures for Completing the QHEI, 2006 edition (OHEPA 2006). See IDEM 2023d for a description of the method used in completing the QHEI (Attachment 3).

4. Field Parameter Measurements
   Dissolved oxygen, pH, water temperature, specific conductance, and dissolved oxygen percent saturation will be measured with a data sonde during each sampling event, regardless of the sample type being collected. Measurement procedures and operation of the data sonde shall be performed according to the manufacturers’ manuals (IDEM 2020c). Turbidity will be measured with a Hach turbidity kit, and the meter number written in the comments under the field parameter measurements (IDEM 2020b). If a

Hach turbidity kit is not available, the data sonde measurement for turbidity will be recorded and noted in the comments. All field parameter measurements and weather codes will be recorded on the IDEM Stream Sampling Field Data Sheet (Attachment 2) with other sampling observations. A digital photo will also be taken upstream and downstream of the site during each macroinvertebrate sampling event.

## B.3. Analytical Methods

1. Water Chemistry Parameter Measurements:
   Pace Analytical Services will perform analyses of nutrient and general chemistry parameters and the Indiana State Chemist Office will perform analyses on pesticide parameters. All analyses will be in accordance with preapproved test methods and within the allotted time frames listed in Table 5.

**Table 5. Water Chemistry Parameters Test Methods**

| Parameter | Method | Lab Reporting Limit | Units |
|---|---|---|---|
| **Nutrients and General Chemistry** | | | |
| Alkalinity (as $CaCO_3$) | SM2320B | 10.0 | mg/L |
| Solids, total residue (TS) | SM 2540B | 10.0 | mg/L |
| Solids, nonfilterable residue (TSS) | SM 2540D | 2.5 | mg/L |
| Solids, filterable residue (TDS) | SM 2540C | 10.0 | mg/L |
| Sulfate | EPA 300.0 | 0.25 | mg/L |
| Chloride | EPA 300.0 | 0.25 | mg/L |
| Hardness (as $CaCO_3$) | SM 2340B | 10.0 | mg/L |
| Ammonia as nitrogen | EPA 350.1 | 0.10 | mg/L |
| Nitrogen, Kjeldahl (TKN) | EPA 351.2 | 0.50 | mg/L |
| Nitrogen, nitrate+nitrite | EPA 353.2 | 0.10 | mg/L |
| Phosphorous, total | EPA 365.1 | 0.05 | mg/L |
| Total organic carbon (TOC) | SM 5310C | 1.0 | mg/L |
| Chemical oxygen demand (COD) | EPA 410.4 | 10.0 | mg/L |
| Calcium | EPA 200.7 | 1,000 | µg/L |
| Magnesium | EPA 200.7 | 1,000 | µg/L |
| **Pesticide Parameters**[3] | | | |
| 2,4,5-T | | 0.007 | mg/L |
| 2,4,5-TP | | 0.037 | mg/L |
| 2,4-D | | 0.007 | mg/L |
| 2,4-DB | | 0.6 | mg/L |
| 2,4-DP | | 0.007 | mg/L |
| Acetamiprid | | 0.0075 | mg/L |
| Acetochlor ESA | | 0.075 | mg/L |
| Acetochlor OA | | 0.045 | mg/L |
| Acifluorfen | | 0.007 | mg/L |

| Parameter | Method | Lab Reporting Limit | Units |
|---|---|---|---|
| Afidopyropen | | 12.5 | mg/L |
| Alachlor ESA | | 0.08 | mg/L |
| Alachlor OA | | 0.037 | mg/L |
| Aldicarb Sulfone | | 0.0075 | mg/L |
| Aldicarb Sulfoxide | | 0.5 | mg/L |
| Aminopyralid | | 1.125 | mg/L |
| Azoxystrobin | | 0.0075 | mg/L |
| Bensulfuron Methyl | | 2.505 | mg/L |
| Bensulide | | 37.5 | mg/L |
| Bentazon | | 0.007 | mg/L |
| Bentazon AIBA | | 2.5 | mg/L |
| Bicyclopyrone | | 0.0075 | mg/L |
| Bicyclopyrone SYN503780 | | 15 | mg/L |
| Bixafen | | 15 | mg/L |
| Boscalid | | 7.5 | mg/L |
| Bromacil | | 0.075 | mg/L |
| Carbaryl | | 0.037 | mg/L |
| Carbendazim | | 1.5 | mg/L |
| Carbofuran | | 0.0075 | mg/L |
| Chloramben | | 2.4 | mg/L |
| Chlorantraniliprole | | 0.037 | mg/L |
| Chlorimuron Ethyl | | 3 | mg/L |
| Chlorpyrifos Oxon | | 0.0075 | mg/L |
| Clethodim Sulfone | | 15 | mg/L |
| Clethodim Sulfoxide | | 7.5 | mg/L |
| Clopyralid | | 0.375 | mg/L |
| Cloransulam Methyl | | 15 | mg/L |
| Clothianidin | | 0.0075 | mg/L |
| Cyanazine | | 3.75 | mg/L |
| Cyanazine Acid | | 1.5 | mg/L |
| Cyanazine Amide | | 1.5 | mg/L |
| Cyantraniliprole | | 0.037 | mg/L |
| Cyclaniliprole | | 0.15 | mg/L |
| Cyprosulfamide | | 0.0075 | mg/L |
| Deethylcyanazine | | 3.75 | mg/L |
| Deethylcyanazine Acid | | 3.75 | mg/L |
| Deethylcyanazine Amide | | 3.75 | mg/L |
| Deisopropylatrazine | | 3.75 | mg/L |
| Diamino-Atrazine | | 0.03 | mg/L |

| Parameter | Method | Lab Reporting Limit | Units |
|---|---|---|---|
| Dicamba | | 0.225 | mg/L |
| Dicrotophos | | 3.75 | mg/L |
| Didealkylatrazine | | 7.5 | mg/L |
| Difenoconazole | | 3.75 | mg/L |
| Dimethenamid ESA | | 0.007 | mg/L |
| Dimethenamid OA | | 0.037 | mg/L |
| Dimethoate | | 7.5 | mg/L |
| Dinotefuran | | 0.0075 | mg/L |
| Disulfoton Sulfone | | 3 | mg/L |
| Diuron | | 0.0075 | mg/L |
| Flumetsulam | | 0.0075 | mg/L |
| Flupyradifurone | | 0.0075 | mg/L |
| Fluroxypyr | | 0.105 | mg/L |
| Flutriafol | | 1.5 | mg/L |
| Fluxapyroxad | | 1.5 | mg/L |
| Fomesafen | | 0.007 | mg/L |
| Halauxifen Acid | | 3.75 | mg/L |
| Halauxifen Methyl | | 1.5 | mg/L |
| Halosulfuron Methyl | | 0.0075 | mg/L |
| Hexazinone | | 0.0075 | mg/L |
| Hydroxyatrazine | | 1.005 | mg/L |
| Imazamethabenz Acid | | 1.5 | mg/L |
| Imazamethabenz Methyl | | 0.75 | mg/L |
| Imazamox | | 1.995 | mg/L |
| Imazapic | | 1.5 | mg/L |
| Imazapyr | | 0.0075 | mg/L |
| Imazaquin | | 2.505 | mg/L |
| Imazethapyr | | 0.0075 | mg/L |
| Imidacloprid | | 0.0075 | mg/L |
| Imidacloprid Olefin | | 7.5 | mg/L |
| Imidacloprid Urea | | 7.5 | mg/L |
| Inpyrfluxam | | 4.5 | mg/L |
| Isoxaflutole | | 0.0075 | mg/L |
| Isoxaflutole DKN | | 0.007 | mg/L |
| Linuron | | 0.0075 | mg/L |
| Mandestrobin | | 3.75 | mg/L |
| MCPA | | 0.007 | mg/L |
| MCPB | | 0.15 | mg/L |
| MCPP | | 0.007 | mg/L |

| Parameter | Method | Lab Reporting Limit | Units |
|---|---|---|---|
| Mefentrifluconazole | | 3.75 | mg/L |
| Mesotrione | | 0.015 | mg/L |
| Metalaxyl | | 0.0075 | mg/L |
| Metconazole | | 3.75 | mg/L |
| Methiozolin | | 4.5 | mg/L |
| Metolachlor ESA | | 0.007 | mg/L |
| Metolachlor OA | | 0.041 | mg/L |
| Metribuzin DA | | 3.75 | mg/L |
| Metribuzin DK | | 75 | mg/L |
| Metsulfuron Methyl | | 0.0075 | mg/L |
| Momfluorothrin | | 7.5 | mg/L |
| Myclobutanil | | 1.5 | mg/L |
| Nicosulfuron | | 0.0075 | mg/L |
| Norflurazon | | 0.0075 | mg/L |
| Norflurazon Desmethyl | | 7.5 | mg/L |
| Oxathiapiprolin | | 15 | mg/L |
| Oxydemeton Methyl | | 3 | mg/L |
| Parathion Methyl Oxon | | 3.75 | mg/L |
| Picarbutrazox | | 2.25 | mg/L |
| Picarbutrazox TZ-1E | | 2.25 | mg/L |
| Picloram | | 0.007 | mg/L |
| Picoxystrobin | | 7.5 | mg/L |
| Prometryn | | 0.0075 | mg/L |
| Propiconazole | | 0.0075 | mg/L |
| Prothioconazole-desthio | | 0.0075 | mg/L |
| Pydiflumetofen | | 3.75 | mg/L |
| Pyraclostrobin | | 3.75 | mg/L |
| Pyridafol | | 3.75 | mg/L |
| Pyrimisulfan | | 3.75 | mg/L |
| Pyroxasulfone | | 7.5 | mg/L |
| Saflufenacil | | 0.0075 | mg/L |
| Siduron | | 1.005 | mg/L |
| Sulfentrazone | | 0.037 | mg/L |
| Sulfentrazone-3-carboxylic acid | | 22.5 | mg/L |
| Sulfometuron Methyl | | 0.0075 | mg/L |
| Tebuconazole | | 1.5 | mg/L |
| Tembotrione | | 0.015 | mg/L |
| Tetraconazole | | 1.5 | mg/L |
| Tetraniliprole | | 7.5 | mg/L |

| Parameter | Method | Lab Reporting Limit | Units |
|---|---|---|---|
| Tetraniliprole quinazolinone | | 7.5 | mg/L |
| Thiacloprid | | 0.0075 | mg/L |
| Thiamethoxam | | 0.0075 | mg/L |
| Thiencarbazone methyl | | 0.037 | mg/L |
| Thifensulfuron Methyl | | 2.505 | mg/L |
| Thiobencarb | | 1.245 | mg/L |
| Tolpyralate | | 7.5 | mg/L |
| Topramezone | | 15 | mg/L |
| Triasulfuron | | 3.495 | mg/L |
| Triclopyr | | 0.037 | mg/L |

[3]Pesticide parameters use test methods from “Pesticide Residue in Water by LCMSMS” provided by Indiana State Chemists Office.

2. Field Parameter Measurements:
   Take the field measurements of DO, DO% saturation, temperature, pH, conductivity, and turbidity each time a sample is collected. Table 6 identifies the field parameters, respective test methods, and sensitivity limits. Place the data sonde in the center of flow during sampling. The field staff member collecting the sample shall wait for all readings to stabilize before recording the readings on the IDEM Stream Sampling Field Data Sheet (Attachment 2).

**Table 6. Field Parameters Test Methods**

| Parameter | Method | Sensitivity Limit | Units |
|---|---|---|---|
| DO (data sonde optical) | ASTM D888-09[4] | 0.01 | mg/L |
| DO (membrane probe) | SM4500-OG | 0.03 | mg/L |
| DO % saturation (data sonde optical) | ASTM D888-09 | 0.01 | % |
| Turbidity (data sonde) | SM2130B | 0.02 | NTU |
| Turbidity (Hach™ turbidity kit) | EPA 180.1[4] | 0.01 | NTU |
| Specific conductance (data sonde) | SM 2510B | 1.0 | µmho/cm |
| Temperature (data sonde) | SM 2550B(2) | 0.1 | °C |
| Temperature (field meter) | SM 2550B(2)[4] | 0.1 | °C |
| pH (data sonde) | EPA 150.2 | 0.01 | SU |
| pH (field meter) | SM 4500-HB[4] | 0.01 | SU |

[4] Method used for Field Calibration Verification

## B.4. Quality Control and Custody Requirements

Quality assurance protocols will follow part D.3.2. of the Surface Water QAPP (IDEM 2023a, p 105) and part B.5. of the Biological and Habitat QAPP (IDEM 2020a, p 27).

1. Field Instrument Testing and Calibrations

The data sonde will be calibrated prior to each week's sampling at minimum (IDEM 2020c). The dissolved oxygen component of the calibration procedure will be conducted using the air calibration method. Calibration results and drift values will be recorded, maintained, stored, and archived 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 described in the instrument user's manuals (Xylem 2017; Xylem 2018). The unit will be field checked for accuracy once during the week by comparison with a YSI EcoSense DO200A DO Probe (IDEM 2020b, p 24), Hach™ turbidity, and an Oakton Series 5 pH meter. Weekly calibration verification results will be recorded on the field calibrations portion of the IDEM OWQ Stream Sampling Field Data Sheets (Attachment 2) and entered into the AIMS II database. The YSI D.O. meter will also be used in the field where the dissolved oxygen concentration is 4.0 mg/L or less. Any pH below 4 or above 10 will be verified with an Oaktown Series 5 pH meter.

2. Field Measurement Data
   In-situ water chemistry field data are collected in the field using calibrated or standardized equipment and recorded on the IDEM OWQ Stream Sampling Field Data Sheet (Attachment 2). Detection limits and ranges have been set for each analysis (Table 6). Quality control checks (such as duplicate measurements, measurements of a secondary standard, or measurements using a different test method or instrument) performed on field or laboratory data, are usable for ensuring precision, accuracy, and completeness for the project, as described in the Surface Water QAPP (IDEM 2023a Table 1, p 37 and Section B.5 p 91).

3. Water Chemistry Measurement Data
   The manufacturer will certify sample bottles and preservatives for purity. Do not use damaged sample bottles and preservatives, and do not use preservatives past their stated expiration date. Field blanks check the purity of sample bottles and preservatives. Sample collection containers for each parameter, preservative, and holding time (Table 4 and Table 5) will adhere to U.S. EPA requirements. Collect field duplicates and matrix spike/matrix spike duplicates at the rate of one per sample analysis set. Additionally, take field blank samples at a rate of one set per sample analysis set. A chain of custody (COC) form created by the AIMS II database IDEM OWQ COC (Attachment 4) and an IDEM Water Sample Analysis Request form (Attachment 5) accompany each sample set through the analytical process. The field staff member collecting the samples signs the COC form upon delivery of samples to the laboratory.

4. Macroinvertebrate Community Measurement Data
   Duplicate macroinvertebrate field samples will be collected for at least 10 percent of the total sites sampled for the project. The duplicate sample sites, approximately three in this basin, will be randomly selected prior to the beginning of the field season. The macroinvertebrate community duplicate sample and corresponding habitat assessment at a single site will be performed by the same team member who performed the original

sample at that site and will be conducted immediately after the initial sample is collected. This will result in a precision evaluation based on a 10% duplicate of samples collected (IDEM 2020a). The IDEM OWQ Field Chain of Custody Form is used to track samples from the field to the laboratory (Attachment 4). A field staff member from the crew completes the OWQ COC form after sampling is complete. After completion of weekly field sampling activities, the laboratory custodian uses the OWQ COC form to check in samples prior to long-term storage. Samples will be processed by Rhithron Associates, Inc. in Missoula, Montana.

# C. Assessment and Oversight

## C.1. Field and Laboratory Performance and System Audits

Field and laboratory performance and system audits will be conducted to ensure good quality data. The field and laboratory performance checks include 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 (IDEM 2023a, Table 1 p. 37).

Biological and habitat measurements, field performance measurements include:

- Completeness (IDEM 2020a, pp 10-11, 14)
- RPD for number of taxa for macroinvertebrate duplicate samples (IDEM 2020a, p 13)
- Difference between the two mIBI scores for macroinvertebrate duplicate samples (IDEM 2020a)
- RPD between the two total Qualitative Habitat Evaluation Index (QHEI) scores for macroinvertebrate duplicate samples (IDEM 2020a, p 18)

Macroinvertebrate lab performance measurements include:

- Percent taxonomic difference (PTD) for macroinvertebrates (IDEM 2020a, pp 15-16)
- Percent difference in enumeration (PDE) and percent sorting efficiency (PSE) for macroinvertebrates (IDEM 2020a, pp 14-16)

All macroinvertebrate samples will be sent to Rhithron Associates, Inc. (Missoula, MT) for identification and verification. Macroinvertebrate identifications and verifications by an external lab require the lab’s taxonomists to maintain Society for Freshwater Science taxonomic certifications. Genus level taxonomic certifications are required for (1) Eastern General Arthropods; (2) Eastern Ephemeroptera, Plecoptera, and Trichoptera; (3) Chironomidae; and (4) Oligochaeta.

Contract laboratories are required to have National Environmental Laboratories Accreditation Conference (NELAC) audits annually as part their certification renewals. In addition, IDEM QA staff annually review performance studies conducted by the contract laboratories. The audit includes any or all the operational quality control elements of the laboratory’s quality assurance system. All applicable elements of this QAPP and the

laboratory contract requirements are addressed including, but not limited to, sample handling, sample analysis, record keeping, preventative maintenance, proficiency testing, personnel requirements, training, and workload. (IDEM 2023a, Section C.1. p. 99).

IDEM WAPB staff conduct field audits every other year to ensure sampling activities adhere to approved SOPs. WAPB managers will systematically conduct audits to include all WAPB personnel engaging in field sampling activities. Managers trained in the associated sampling SOPs and in the processes related to conducting an audit evaluate WAPB field staff involved with sample collection and preparation. Managers will produce an evaluation report documenting each audit for review by those field staff audited as well as WAPB management. Corrective actions will be communicated to field staff who implement the corrective actions as a result of the audit process (IDEM 2023a, Section C. p 99-100; IDEM 2020a, p 31).

The QA officer submits quality assurance reports upon completion of a dataset's data validation to the program manager or WAPB branch chief. The QA manager, relevant section chief, project manager, any technical staff working on corrective actions, and quality assurance staff receive copies of the progress reports when new developments arise. The section chief, project officer, or QA officer is responsible for working with relevant staff members to develop corrective actions and notifying the QA manager of corrective action progress. Depending on the associated corrective actions, either the section chief or the QA officer approves the final corrective action (IDEM 2023a, Section C.2. p. 101).

### C.2. Data Quality Assessment Levels

The samples and various types of data collected by this program are intended to meet the quality assurance criteria and rated DQA Level 3, as described in the Surface Water QAPP (IDEM 2023a, pp 107-108) and the Biological and Habitat QAPP (IDEM 2020a, pp 34–35).

## D. Data Validation and Usability

Quality assurance reports to management, data validation and usability are important components of Indiana's Surface Water QAPP to ensure good quality data for this project. The QA officer submits quality assurance reports upon completion of a dataset's data validation to the program manager or WAPB branch chief. This is done to ensure investigation and correction of problems that arise during the sampling and analysis phases of the project (IDEM 2023a, p 101). As described in Section D of the Surface Water QAPP (IDEM 2023a), data are reduced (converted from raw analytical data into final results in proper reporting units); validated (qualified based on the performance of field and laboratory QC measures incorporated into the sampling and analysis procedures); and reported (described to completely document the calibration, analysis, QC measures, and calculations). These steps allow users to assess the data to ensure the project DQOs are met.

## D.1. Quality Assurance, Data Qualifiers, and Flags

Various data qualifiers and flags are used for quality assurance and validation of the data found in the Surface Water QAPP (IDEM 2023a Section D.3.3. pp 108-109) and the Biological and Habitat QAPP (IDEM 2020a pp 33-34).

## D.2. Data Usability

Qualify the environmental data's collection and usability per each lab or field result obtained and classify into one or more of the four categories: acceptable data, enforcement capable results, estimated data, and rejected data as described in the Surface Water QAPP (IDEM 2023a pp 107-108) and in the Biological and Habitat QAPP (IDEM 2020a pp 35-36).

## D.3. Information, Data, and Reports

Data collected in 2023 and 2024 will be stored in the AIMS II database and presented in two compilation summaries. The first summary is a general compilation of the watershed field and water chemistry data prepared for use in the 2026 Indiana Integrated Report. The second summary is in database report format containing biological results and habitat evaluations, produced for inclusion in the integrated report as well as individual site folders. Site folders are maintained at the WAPB facility, and all data and reports are available to public and private entities. The work plan is saved in the virtual file cabinet and in the OWQ QA Library. Field sheets are scanned and stored in the project in the AIMS II database. The data is uploaded to U.S. EPA's Water Quality Portal via the Water Quality Exchange (formerly Storet), which allows the data to be shared with U.S. EPA and others. The Water Quality Exchange is a framework which allows states, tribes, and other data partners to submit and share water quality monitoring data via the web to the Water Quality Portal.

## D.4. Laboratory and Estimated Cost

Laboratory analysis and data reporting for this project complies with the Surface Water QAPP (IDEM 2023a); Request for Proposals 22-68153 (IDEM 2021); the IDEM QMP (IDEM 2018b); and Pace Analytical Services- contract #58643, PO # 0020003041. The analytical and identification funds for Pace Analytical Services and Rithron Associates, Inc are provided by an EPA Section 106 Monitoring Initiative grant, 03E02329. Pace Analytical Services in Indianapolis, Indiana will perform analytical tests on general chemistry and nutrient parameters outlined in Table 5 with a total estimated cost of $58,240. The Office of Indiana State Chemist will perform analytical tests on pesticide parameters outlined in Table 5 for no additional charge. IDEM staff will collect macroinvertebrate samples. Rhithron Associates, Inc. in Missoula, Montana will identify and verify all macroinvertebrate samples with a total estimated cost of $8,700. The anticipated total budget for laboratory costs for the project is $66,940. Laboratory accreditations can be referenced in Attachment 6.

## D.5. Reference Manuals and Personnel Safety

### Table 7. Personnel Safety and Reference Manuals

| Role | Required Training or Experience | Training References | Training Notes |
|---|---|---|---|
| All staff participating in field activities | - Basic first aid and cardio-pulmonary resuscitation (CPR)<br><br>- Personal protective equipment (PPE) policy<br><br>- Personal floatation devices | - A minimum of four hours of in-service training provided by WAPB (IDEM 2010a)<br><br>- IDEM 2008<br><br>- February 29, 2000, WAPB internal memorandum regarding use of approved personal flotation devices | - WAPB staff that meet health and safety training requirements will accompany staff lacking four hours of in-service training, or appropriate certification, in the field at all times.<br><br>- When working on boundary waters as defined by Indiana Code (IC) 14-8-2-27 or between sunset and sunrise on any waters of the state, all personnel in the watercraft must wear a high intensity whistle and Safety of Life at Sea (SOLAS) certified strobe light. |

## E. References

Standard documentation include:


- U.S. EPA 1983. "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-79/020, March 1983. Washington, DC.
- U.S. EPA 1999. Barbour, M.T., J. Gerritsen, B.D. Snyder and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA/841/B-99/002. U.S. EPA, Office of Water, Washington, D.C.
- U.S. EPA 2002. Guidance for Quality Assurance Project Plans EPA QA/G-5, EPA/240R-02/009 U.S. EPA, Office of Environmental Information, Washington D.C.
- U.S. EPA 2006. Guidance on Systematic Planning Using the Data Quality Objectives Process. EPA QA/G-4. EPA/240/B-06/001. U.S. EPA, Office of Environmental Information, Washington D.C. 20460
- Indiana Administrative Code, Title 327 Water Pollution Control Division, Article 2. Water Quality Standards.


Standard operating procedures (SOPs) or technical SOPs (TSOP):


- IDEM 2008. IDEM Personal Protective Equipment Policy, revised May 1, 2008. A-059-OEA-08-P-R0. IDEM, Indianapolis, Indiana.
- IDEM 2008. IDEM policy, Personal Protective Equipment Policy, revised May 1, 2008, A-059-OEA-08-P-R0, Office of Program Support Health and Safety Director, IDEM, Indianapolis, Indiana
- IDEM 2010a. IDEM policy, Health and Safety Training Policy, revised October 1 2010. A-030-OEA-10-P-R2. IDEM, Indianapolis, Indiana.
- IDEM 2010b. IDEM policy Injury and Illness Resulting from Occupational Exposure Policy, revised February 12, 2016. A-034-AW-16-P-R3. IDEM, Indianapolis, Indiana.
- IDEM 2018. IDEM 2018 Quality Management Plan. IDEM, Indiana Government Center North, 100 N. Senate Ave., Indianapolis, Indiana, 46204.
- IDEM 2019a. IDEM Hazard Communication (HazCom) Plan, IDEM, Office of Program Support, Indianapolis, Indiana.
- IDEM 2019b. IDEM Health and Safety Manual, IDEM, Office of Program Support, Indianapolis, Indiana
- IDEM 2020a. Quality Assurance Program Plan (QAPP) for Biological Community and Habitat Measurements. B-003-OWQ-WAP-XXX-20-Q-R0. IDEM, OWQ, WAPB, Indianapolis, Indiana.
- IDEM 2020b. Water Chemistry Field Sampling Procedures. B-015-OWQ-WAP-XXX-20-T-R0. IDEM, OWQ, WAPB, Indianapolis, Indiana.
- IDEM 2020c. Calibration of YSI Multiparameter Data Sondes. B-014-OWQ-WAP-XXX-20-T-R0. IDEM, OWQ, WAPB, Indianapolis, Indiana.

- IDEM 2021. "State of Indiana Request for Proposals 22-68153, Solicitation for: Laboratory Analytical Services", Indiana Department of Administration, Indianapolis, IN, February 26, 2016. *
- IDEM 2021b. Office of Water Quality Watershed Assessment and Planning Branch Laboratory Safety Plan. IDEM, Office of Program Support, Indianapolis, Indiana.
- IDEM 2022a. Appendix G: IDEM's 2022 Consolidated Assessment and Listing Methodology. IDEM, OWQ, WAPB, Indianapolis, Indiana.
- IDEM 2022b. Global Positioning System (GPS) Data Creation TSOP. B-001-OWQ-WAP-XXX-22-T-R0. OWQ, WAPB, Indianapolis, Indiana.
- IDEM 2022c. AIMS II Database User Guide. OWQ, WAPB, Indianapolis, Indiana*
- IDEM 2023a. WAPB Indiana Surface Water Programs Quality Assurance Project Plan (QAPP), (Rev. 5, July 2023). B-001-OWQ-WAP-XX-23-Q-R5. IDEM, OWQ, WABP, Indianapolis, Indiana.
- IDEM 2023b. Global Navigational Satellite System (GNSS) R1 Unit User Instructions TSOP. B-055-OWQ-WAP-XXX-23-T-R0. OWQ, WAPB, Indianapolis, Indiana.
- IDEM 2023c. Multi-habitat (MHAB) Macroinvertebrate Collection Procedure. B-011-OWQ-WAP-XXX-23-T-R1. OWQ, WAPB, Indianapolis, Indiana.
- IDEM 2023d. Procedures for Completing the Qualitative Habitat Evaluation Index. B-003-OWQ-WAP-XX-23-T-R2. IDEM, OWQ, WAPB, Indianapolis, Indiana. (Under revision as of 3/27/2023)
- IDEM 2023e. Processing and Identification of Macroinvertebrate Samples. B-061-OWQ-WAP-XXX-23-T-R0. OWQ, WAPB, Indianapolis, Indiana.
- Klemm, D.J., P.A. Lewis, F. Fulk and J.M. Lazorchak. 1990. Macroinvertebrate Field and Laboratory Methods for Evaluating the Biological Integrity of Surface Waters. EPA/600/4-90/030. Environmental Monitoring Systems Laboratory, Monitoring Systems and Quality Assurance, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio.

Additional publications and resources relevant to the implementation of this QAPP include:

- American Public Health Association, American Water Works Association, Water Environment Federation. Lipps WC, Braun-Howland EB, Baxter TE, eds. Standard Methods for the Examination of Water and Wastewater. 24th ed. Washington DC: APHA Press; 2023.
- Moore, R.B., McKay, L.D., Rea, A.H., Bondelid, T.R., Price, C.V., Dewald, T.G., and Johnston, C.M. 2019, User's guide for the national hydrography dataset plus (NHDPlus) high resolution: U.S. Geological Survey Open-File Report 2019–1096.
- OHEPA. 2006. Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI). OHIO EPA Technical Bulletin EAS/2006-06-1. Revised by the Midwest Biodiversity Institute for State of Ohio Environmental Protection Agency, Division of Surface Water, Ecological Assessment Section, Groveport, Ohio.
- Plafkin, J.L., M.T. Barbour, K.D. Porter, S.K. Gross, and R.M. Hughes. 1989. Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates

and Fish. EPA/444/4-89/001. Assessment and Watershed Protection Division, U.S. Environmental Protection Agency, Washington, D.C.

- Xylem Incorporated 2017. Revision G, EXO User Manual, Yellow Springs, Ohio.
- Xylem Incorporated 2018. Revision H, YSI ProDigital User Manual, Yellow Springs, Ohio.

*Document may be inspected at the Watershed Assessment and Planning Branch office, located at 2525 North Shadeland Avenue Suite 100, Indianapolis, Indiana.

# F. Distribution List

**Electronic Distribution Only**

| Name | Organization |
|---|---|
| Caleb Rennaker | IDEM OWQ WAPB Technical and Logistical Services Section Chief |
| Kelly Jones | IDEM OPS Recycling Education and Quality Assurance QA Manager |
| Timothy Bowren | IDEM OWQ WAPB Technical and Logistical Services Section |
| Michaela Hecox | IDEM OWQ WAPB Targeted Monitoring Section |
| Charles Hostetter | IDEM OWQ WAPB Technical and Logistical Services Section |
| Mitchell Owens | IDEM OWQ WAPB Probabilistic Monitoring Section |
| Paul McMurray | IDEM OWQ WAPB Technical Environmental Specialist |
| Stacey Sobat | IDEM OWQ WAPB Probabilistic Monitoring Section Chief |
| Ali Meils | IDEM OWQ WAPB Targeted Monitoring Section Chief |
| Kristen Arnold | IDEM OWQ WAPB Branch Chief |

# G. Attachments

## Attachment 1: IDEM OWQ Site Reconnaissance Form

IDEM

**Site Reconnaissance Form**

| EPA Site Identifier | Rank |
|---|---|
| | |
| Recon #: Trip #: | |

Site Number: Stream: County:

Location Description:

**Reconnaissance Data Collected**

Recon Date | Crew Members

Avg. Width (m) | Avg. Depth (m) | Max. Depth (m) | Nearest Town

Water Present? | Site Wadeable? | Riffle/Run Present? | Road/Public Access Possible?

Site Impacted by Livestock? | Collect Sediment? | Gauge Present?

**Landowner/Contract Information**

First Name | Last Name

Street Address

City | State | Zip

Telephone | E-Mail Address

Pamphlet Distributed? | Please Call in Advance? | Results Requested?

**Rating, Results, Comments, and Planning**

| Site Rating By Category (1=easy, 10=difficult) |
|---|
| Access Route |
| |
| Safety Factor |
| |
| Sampling Effort |
| |

**Reconnaissance Decision**

Pre-Recon
Recon In process
Approved Site
No, Landowner denied access
No, Dry
No, Stream channel missing
No, Physical barriers
No, Impounded stream
No, Marsh/Wetland
No, Bridge gone or not accessible
No, Unsafe due to traffic or location
No, Site impacted by backwater
No, Other

**Equipment Selected**

**Circle Equipment Needed**

Backpack
Boat
Towbarge
Longline
Canoe
Seine
Weighted Handline
Waders
Gill Net

Comments

Sketch of Stream & Access Route – Indicate Flow, Direction, Obstacles, & Land Use (Use Back of Page, if Necessary)

# Attachment 2: IDEM OWQ Stream Sampling Field Data Sheet

## Stream Sampling Field Data Sheet

| Analysis Set # | EPA Site ID | Rank |
|---|---|---|
| | | |

| Sample # | Site # | Sample Medium | Sample Type | Duplicate Sample # |
|---|---|---|---|---|
| | | | | |

| Stream Name: | | River Mile: | | County: | |
|---|---|---|---|---|---|

Site Description:

| Survey Crew Chief | Sample Collectors 1 | 2 | 3 | 4 | Sample Collected Date | Time | Hydrolab # | Water Depth/Gage Ht (ft) | Water Flow (cfs/sec) | Flow Estimated? | Algae? | Aquatic Life? |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | ☐ | ☐ | ☐ |

| Sample Taken? | Aliquots | Water Flow Type | Water Appearance | Canopy Closed % |
|---|---|---|---|---|
| ☐ Yes ☐ No; Frozen<br>☐ No; Stream Dry ☐ No; Other<br>☐ No; Owner refused Access | ☐ 1 ☐ 2 ☐ 3 ☐ 4<br>☐ 8 ☐ 8 ☐ 12 ☐ 24<br>☐ 48 ☐ 72 ☐ All-Flow | ☐ Riffle ☐ Dry ☐ Stagnant<br>☐ Pool ☐ Run ☐ Flood<br>☐ Glide ☐ Eddy ☐ Other | ☐ Clear ☐ Green ☐ Sheen<br>☐ Murky ☐ Black ☐ Other<br>☐ Brown ☐ Gray (Septic/Sewage) | ☐ 0-20% ☐ 80-80%<br>☐ 20-40% ☐ 80-100%<br>☐ 40-60% |

Special Notes:

### Field Data:

| Date (m/d/yy) | 24-hr Time (hh:mm) | D.O. (mg/l) | pH | Water Temp (°C) | Spec Cond (µohms/cm) | Turbidity (NTU) | % Sat. | Chlorine (mg/l) | Chloride (mg/l) | Chlorophyll (mg/l) | Weather Codes SC | WD | WS | AT |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| Comments | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| Comments | | | | | | | | | | | | | | |

| Measurement Flags | |
|---|---|
| < | < Min. Meter Measurement |
| > | > Max. Meter Measurement |
| E | Estimated (See Comments) |
| R | Rejected (See Comments) |

**Weather Code Definitions**

| SC Sky Conditions | | WD Wind Direction | WS Wind Strength | AT Air Temp |
|---|---|---|---|---|
| 1 Clear | 8 Rain | 00 North (0 degrees) | 0 Calm | 1 < 32 |
| 2 Scattered | 9 Snow | 09 East (90 degrees) | 1 Light | 2 33-45 |
| 3 Partly | 10 Sleet | 18 South (180 degrees) | 2 Mod./Light | 3 46-60 |
| 4 Cloudy | | 27 West (270 degrees) | 3 Moderate | 4 61-75 |
| 5 Mist | | | 4 Mod./Strong | 5 76-85 |
| 6 Fog | | | 5 Strong | 6 > 86 |
| 7 Shower | | | 6 Gale | |

### Field Calibrations:

| Date (m/d/yy) | Time (hh:mm) | Calibrator Initials | Calibrations Type | Meter # | Value | Units |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| Calibration Type |
|---|
| pH |
| DO |
| Turbidity |

### Preservatives/Bottle Lots:

| Group: Preservative | Preservative Lot # | Bottle Type | Bottle Lot # |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

| Groups: Preservatives | | Bottle Types | |
|---|---|---|---|
| GC | General Chemistry: Ice | 2000P | 2000mL Plastic, Narrow Mouth |
| Nx | Nutrients: H2SO4 | 1000P | 1000mL Plastic, Narrow Mouth |
| Metals | Metals: HNO3 | 500P | 500mL Plastic, Narrow Mouth |
| CN | Cyanide: NaOH | 250P | 250mL Plastic, Narrow Mouth |
| O&G | Oil & Grease: H2SO4 | 1000G | 1000mL Glass, Narrow Mouth |
| Toxics | Toxics: Ice | 500G | 500mL Glass, Wide Mouth |
| Ecoli | Bacteriology: Ice | 250G | 250mL Glass, Wide Mouth |
| VOA | Volatile Organics: HCl & Thiosulfate | 125G | 125mL Glass, Wide Mouth |
| Pest | Pesticides: Ice | 40GV | 40mL Glass Vial |
| Phen | Phenols: H2SO4 | 120PB | 120ml Plastic (Bacteria Only) |
| Sed | Sediment: Ice | 1000PF | 1000mL Plastic, Corning Filter |
| Gly | Glyphosate: Thiosulfate | 500PF | 500mL Plastic, Corning Filter |
| Hg | Mercury(1631): HCl | 60P | 60mL Plastic |
| Cr6 | Chromium VI(1636): NaOH | 250T | 250mL Teflon |
| MeHg | Methyl Mercury(1630): HCl | 500T | 500mL Teflon |
| | | 125T | 125mL Teflon |

Data Entered By: _____ QC1: _____
QC2: _____

Stream Sampling Field Data Sheet

# Attachment 3: IDEM OWQ Biological Qualitative Habitat Evaluation Index (front)

## OWQ Biological QHEI (Qualitative Habitat Evaluation Index)

| Sample # | bioSample # | Stream Name | Location |
|---|---|---|---|
| | | | |

| Surveyor | Sample Date | County | Macro Sample Type | ☐ Habitat Complete | QHEI Score: |
|---|---|---|---|---|---|
| | | | | | |

**1] *SUBSTRATE*** Check ONLY Two predominant substrate TYPE BOXES and check every type present

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

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

Check ONE (Or 2 & average)

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

**QUALITY**

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

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

Substrate Maximum 20

**Comments**

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

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

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

Cover Maximum 20

**Comments**

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

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

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

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

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

Channel Maximum 20

**Comments**

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

River right looking downstream

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

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

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

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

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

Riparian Maximum 10

**Comments**

**5] *POOL/GLIDE AND RIFFLE/RUN QUALITY***

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

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

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

Indicate for reach – pools and riffles.

Recreation Potential (Check one and comment on back)
- ☐ Primary Contact
- ☐ Secondary Contact

Pool/ Current Maximum 12

**Comments**

Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species:

Check ONE (Or 2 & average) ☐ NO RIFFLE [metric = 0]

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

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

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

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

Riffle/ Run Maximum 8

**Comments**

**6] *GRADIENT*** ( ft/mi)

***DRAINAGE AREA*** ( mi²)

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

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

Gradient Maximum 10

Entered _____ QC1 _____ QC2 _____ IDEM 02/28/2018

# Attachment 3 (continued): IDEM OWQ Biological Qualitative Habitat Evaluation Index (back)

**OWQ Biological QHEI (Qualitative Habitat Evaluation Index)**

COMMENT _____

**A-CANOPY**
- ☐ > 85% - Open
- ☐ 55% - < 85%
- ☐ 30% - < 55%
- ☐ 10% - < 30%
- ☐ < 10% - Closed

**B-AESTHETICS**
- ☐ Nuisance algae
- ☐ Invasive macrophytes
- ☐ Excess turbidity
- ☐ Discoloration
- ☐ Foam/Scum
- ☐ Oil sheen
- ☐ Trash/Litter
- ☐ Nuisance odor
- ☐ Sludge deposits
- ☐ CSOs/SSOs/Outfalls

**C-RECREATION**

Area Depth
Pool: ☐ > 100 ft² ☐ > 3 ft

**D-MAINTENANCE**
- ☐ Public ☐ Private
- ☐ Active ☐ Historic
- Succession: ☐ Young ☐ Old
- ☐ Spray ☐ Islands ☐ Scoured
- Snag : ☐ Removed ☐ Modified
- Leveed: ☐ One sided ☐ Both banks
- ☐ Relocated ☐ Cutoffs
- Bedload: ☐ Moving ☐ Stable
- ☐ Armoured ☐ Slumps
- ☐ Impounded ☐ Desiccated
- ☐ Flood control ☐ Drainage

**E-ISSUES**
- ☐ WWTP ☐ CSO ☐ NPDES
- ☐ Industry ☐ Urban
- ☐ Hardened ☐ Dirt & Grime
- ☐ Contaminated ☐ Landfill
- BMPs: ☐ Construction ☐ Sediment
- ☐ Logging ☐ Irrigation ☐ Cooling
- Erosion: ☐ Bank ☐ Surface
- ☐ False bank ☐ Manure ☐ Lagoon
- ☐ Wash $H_2O$ ☐ Tile ☐ $H_2O$ Table
- Mine: ☐ Acid ☐ Quarry
- Flow: ☐ Natural ☐ Stagnant
- ☐ Wetland ☐ Park ☐ Golf
- ☐ Lawn ☐ Home
- ☐ Atmospheric deposition
- ☐ Agriculture ☐ Livestock

Looking upstream (> 10m, 3 readings; ≤ 10m, 1 reading in middle); Round to the nearest whole percent

| | Right | Middle | Left | Total Average |
|---|---|---|---|---|
| %open | ___ % | ___ % | ___ % | ___ % |
| | X | X | X | |

**Stream Drawing:**

IDEM 02/28/2018

# Attachment 4: IDEM OWQ Chain of Custody Form

Indiana Department of Environmental Management

## OWQ Chain of Custody Form

Project:

OWQ Sample Set or Trip #:

I Certify that the sample(s) listed below was/were collected by me, or in my presence. Date:_____

Signature:_____ Section:_____

Sample Media (☐ Water, ☐ Algae, ☐ Fish, ☐ Macro, ☐ Cyanobacteria/Microcystin, ☐ Sediment)

| Lab Assigned Number / Event ID | IDEM Control Number | Sample Type | ID | 1000 ml P.N.M. | 1000 ml G.N.M. | 40 ml Vial | 120 ml P (Bact) | 2000 ml Nalgene | 250 ml Nalgene | 125 ml Glass | Date and Time Collected | | One check per bottle present |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Date | Time | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| P = Plastic | G = Glass | N.M. = Narrow Mouth | | Bact = Bacteriological Only | | | | | | | Should samples be iced? | Y | N |
| M = MS/MSD | B = Blank | D = Duplicate | | R = Revisit | | | | | | | | | |

### Carriers

I certify that I have received the above sample(s).

| Signature | Date | Time | Seals Intact | | Comments |
|---|---|---|---|---|---|
| Relinquished By: | | | Y | N | |
| Received By: | | | | | |
| Relinquished By: | | | Y | N | |
| Received By: | | | | | |
| Relinquished By: | | | Y | N | |
| Received By: | | | | | |
| IDEM Storage Room # | | | | | |

### Lab Custodian

I certify that I have received the above sample(s), which has/have been recorded in the official record book. The same sample(s) will be in the custody of competent laboratory personnel at all times, or locked in a secured area.

Signature:_____ Date:_____ Time:_____

Lab:_____ Address:_____

Revision Date: 4/27/2016

# Attachment 5: IDEM OWQ Water Sample Analysis Request Form

**Indiana Department of Environmental Management**
*Office of Water Quality*
Watershed Planning and Assessment Branch
www.idem.IN.gov

**Water Sample Analysis Request**

**Project Name: 2022 Black Creek** **Composite ☐ Grab ☒**

| | | | |
|---|---|---|---|
| OWQ Sample Set | 21BLWxxx | IDEM Sample Nos. | |
| Crew Chief | Ross Carlson | Lab Sample Nos. | |
| Collection Date | Nov. 15-17, 2021 | Lab Delivery Date | |

**Anions and Physical Parameters**

| Parameter | Test Method | Total | Dissolved |
|---|---|---|---|
| Alkalinity (as $CaCO_3$) | 310.2 | ☒ ** | ☐ |
| Total Solids | SM2540B | ☒ ** | |
| Suspended Solids | SM2540D | ☒ ** | |
| Dissolved Solids | SM2540C | | ☒ ** |
| Sulfate (as $SO_4$) | 300.0 | ☒ ** | ☐ ** |
| Chloride (as Cl) | 300.0 | ☒ ** | ☐ ** |
| Hardness (Calculated) | SM-2340B | ☒ ** | ☐ ** |
| Fluoride (as F) | SM4500-F-C | ☐ ** | ☐ ** |

**Priority Pollutant Metals Water Parameters**

| Parameter | Test Method | Total | Dissolved |
|---|---|---|---|
| Antimony (as Sb) | 200.8 | ☐ | ☐ |
| Arsenic (as As) | 200.8 | ☐ | ☐ |
| Beryllium (as Be) | 200.8 | ☐ | ☐ |
| Cadmium (as Cd) | 200.8 | ☐ | ☐ |
| Chromium (as Cr) | 200.8 | ☐ | ☐ |
| Copper (as Cu) | 200.8 | ☐ | ☐ |
| Lead (as Pb) | 200.8 | ☐ | ☐ |
| Mercury, Low Level | 1631, Rev E. | ☐ | ☐ |
| Nickel (as Ni) | 200.8 | ☐ | ☐ |
| Selenium (as Se) | 200.8 | ☐ | ☐ |
| Silver (as Ag) | 200.8 | ☐ | ☐ |
| Thallium (as Tl) | 200.8 | ☐ | ☐ |
| Zinc (as Zn) | 200.8 | ☐ | ☐ |

**Cations and Secondary Metals Parameters**

| Parameter | Test Method | Total | Dissolved |
|---|---|---|---|
| Aluminum (as Al) | **200.8** | ☐ | ☐ |
| Barium (as Ba) | 200.8 | ☐ | ☐ |
| Boron (as B) | 200.8 | ☐ | ☐ |
| Calcium (as Ca) | **200.7** | ☒ *** | ☐ |
| Cobalt (as Co) | 200.8 | ☐ | ☐ |
| Iron (as Fe) | 200.7 | ☐ | ☐ |
| Magnesium (as Mg) | **200.7** | ☒ *** | ☐ |
| Manganese (as Mn) | 200.8 | ☐ | ☐ |
| Sodium (as Na) | 200.7 | ☐ | ☐ |
| Silica, Total Reactive (as $SiO_2$) | 200.7 | ☐ | ☐ |
| Strontium (as Sr) | 200.8 | ☐ | ☐ |

**Send reports (Fed. Ex. or UPS) to:**
Tim Bowren - IDEM
Bldg. 20, STE 100
2525 North Shadeland Ave.
Indianapolis, IN 46219

**Deliver reports to:**
Tim Bowren - IDEM
Bldg. 20, STE 100
2525 North Shadeland Ave.
Indianapolis, IN 46219

**Organic Water Parameters**

| Parameter | Test Method | Total |
|---|---|---|
| Priority Pollutants: Oranochlorine Pesticides and PCBs | 608 | ☐ |
| Priority Pollutants: VOCs - Purgeable Organics | 624 | ☐ |
| Priority Pollutants: Base/Neutral Extractables | 625 | ☐ |
| Priority Pollutants: Acid Extractables | 625 | ☐ |
| Phenolics, 4AAP | 420.4 | ☐ |
| Oil and Grease, Total | 1664A | ☐ |

**Nutrient & Organic Water Chemistry Parameters**

| Parameter | Test Method | Total | Dissolved |
|---|---|---|---|
| Ammonia Nitrogen | SM4500NH3-G | ☒ | ☐ |
| $CBOD_5$ | SM5210B | ☐ | |
| Total Kjeldahl Nitrogen (TKN) | SM4500N(Org) | ☒ | ☐ |
| Nitrogen, Nitrate + Nitrite as N | 353.2 | ☒ | ☐ |
| Total Phosphorus | 365.1 | ☒ | ☐ |
| TOC | SM 5310C | ☒ | ☐ |
| COD | 410.4 | ☒ | ☐ |
| Cyanide (Total) | 335.4 | ☐ | ☐ |
| Cyanide (Free) | SM4500CN-I | ☐ * | ☐ |
| Cyanide (Amenable) | SM4500CN-G | ☐ * | ☐ |
| Sulfide, Total | 376.2 | ☐ | ☐ |

| | |
|---|---|
| RFP 16-74 Contract Number: | 018620 (Pace-Indy) PO # 0020000887-5 (Pace-Indy) |

**30 day reporting time required.**

**Notes:**
** **= DO NOT RUN PARAMETER IF SAMPLE IDENTIFIED AS A BLANK ON THE CHAIN OF CUSTODY**
* **= RUN ONLY IF TOTAL CYANIDE IS DETECTED**
*** = *Report Calcium, Magnesium components of Total Hardness (Calculated)*

Testing Laboratory: Pace Analytical Services, Inc.
Attn: Olivia Deck
Phone: 317-228-3102 7726 Moller Road
Indianapolis, IN 46268

## Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation

# State of Kansas

Department of Health and Environment

## CERTIFICATE

*This is to certify that Certification No.: E-10177*

Pace Analytical Services, Inc - Indianapolis

7726 Moller Road
Indianapolis, IN 46268-4163

*has been accredited in accordance with K.S.A. 65-1,109a under the standards adopted in K.A.R. 28-15-36 for performing environmental analyses for the parameters listed on the most current scope of accreditation. Continuous accreditation depends on successful, ongoing participation in the program. Clients are urged to verify with this agency the laboratory's certification status for particular methods and analytes.*

Effective Date: 5/1/2023

Expiration Date: 4/30/2024

Leo Henning
Acting Director
Office of Laboratory Services

Carissa Robertson
Certification Section Chief
Office of Laboratory Services

## Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

Division of Environment
Kansas Health and Environmental Laboratories
Environmental Laboratory Improvement Program
6810 SE Dwight Street
Topeka, KS 66620

Kansas Department of Health and Environment

Phone: 785-296-3811
Fax: 785-559-5207
KDHE.ELIPO@KS.GOV
www.kdheks.gov/envlab

Janet Stanek, Secretary

Laura Kelly, Governor

The Kansas Department of Health and Environment encourages all clients and data users to verify the most current scope of accreditation for certification number E-10177

The analytes tested and the corresponding matrix and method which a laboratory is authorized to perform at any given time will be those indicated in the most recently issued scope of accreditation. The most recent scope of accreditation supersedes all previously issued scopes of accreditation. It is the certified laboratory's responsibility to review this document for any discrepancies. This scope of accreditation will be recalled in the event that your laboratory's certification is revoked.

**Accreditation Start: 5/1/2023 Accreditation End: 4/30/2024**

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177**



Pace Analytical Services, Inc - Indianapolis **Primary AB**

**Program/Matrix:** ***CWA (Non Potable Water)***

| | |
|---|---|
| **Method ASTM D516-16** | |
| Sulfate | KS |
| **Method EPA 120.1** | |
| Conductivity | KS |
| **Method EPA 1631E** | |
| Mercury | KS |
| **Method EPA 1664A** | |
| Oil & Grease | KS |
| **Method EPA 1664A (SGT-HEM)** | |
| n-Hexane Extractable Material - Silica Gel Treated (HEM-SGT) | KS |
| **Method EPA 180.1 Rev. 2 - 1993** | |
| Turbidity | KS |
| **Method EPA 200.7 Rev 4.4** | |
| Aluminum | KS |
| Antimony | KS |
| Arsenic | KS |
| Barium | KS |
| Beryllium | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***CWA (Non Potable Water)*** | |
| Molybdenum | KS |
| Nickel | KS |
| Potassium | KS |
| Selenium | KS |
| Silver | KS |
| Sodium | KS |
| Strontium | KS |
| Thallium | KS |
| Tin | KS |
| Titanium | KS |
| Vanadium | KS |
| Zinc | KS |
| **Method EPA 200.8** | |
| Aluminum | KS |
| Antimony | KS |
| Arsenic | KS |
| Barium | KS |
| Beryllium | KS |
| Boron | KS |
| Cadmium | KS |
| Chromium | KS |
| Cobalt | KS |
| Copper | KS |
| Lead | KS |
| Manganese | KS |
| Molybdenum | KS |
| Nickel | KS |
| Selenium | KS |
| Silver | KS |
| Thallium | KS |
| Tin | KS |
| Titanium | KS |
| Vanadium | KS |
| Zinc | KS |
| **Method EPA 245.1** | |
| Mercury | KS |
| **Method EPA 300.0** | |
| Bromide | KS |
| Chloride | KS |
| Fluoride | KS |
| Nitrate | KS |
| Nitrate-nitrite | KS |
| Nitrite | KS |
| Sulfate | KS |
| **Method EPA 335.4** | |
| Amenable cyanide | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***CWA (Non Potable Water)*** | |
| Cyanide | KS |
| **Method EPA 350.1** | |
| Ammonia as N | KS |
| **Method EPA 351.2** | |
| Total Kjeldahl Nitrogen (TKN) | KS |
| **Method EPA 351.2 minus EPA 350.1** | |
| Organic nitrogen | KS |
| **Method EPA 353.2** | |
| Nitrate | KS |
| Nitrate-nitrite | KS |
| Nitrite | KS |
| **Method EPA 365.1** | |
| Phosphorus | KS |
| **Method EPA 410.4** | |
| Chemical oxygen demand | KS |
| **Method EPA 420.4** | |
| Total phenolics | KS |
| **Method EPA 6010B** | |
| Arsenic | KS |
| Cadmium | KS |
| Copper | KS |
| Lead | KS |
| Molybdenum | KS |
| Nickel | KS |
| Selenium | KS |
| Strontium | KS |
| Total chromium | KS |
| Zinc | KS |
| **Method EPA 6020** | |
| Arsenic | KS |
| Cadmium | KS |
| Copper | KS |
| Lead | KS |
| Nickel | KS |
| Selenium | KS |
| Total chromium | KS |
| Zinc | KS |
| **Method EPA 608.3 GC-ECD** | |
| 4,4'-DDD | KS |
| 4,4'-DDE | KS |
| 4,4'-DDT | KS |
| Aldrin | KS |
| alpha-BHC (alpha-Hexachlorocyclohexane) | KS |
| Aroclor-1016 (PCB-1016) | KS |
| Aroclor-1221 (PCB-1221) | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***CWA (Non Potable Water)*** | |
| Aroclor-1232 (PCB-1232) | KS |
| Aroclor-1242 (PCB-1242) | KS |
| Aroclor-1248 (PCB-1248) | KS |
| Aroclor-1254 (PCB-1254) | KS |
| Aroclor-1260 (PCB-1260) | KS |
| beta-BHC (beta-Hexachlorocyclohexane) | KS |
| Chlordane (tech.)(N.O.S.) | KS |
| delta-BHC | KS |
| Dieldrin | KS |
| Endosulfan I | KS |
| Endosulfan II | KS |
| Endosulfan sulfate | KS |
| Endrin | KS |
| Endrin aldehyde | KS |
| gamma-BHC (Lindane, gamma-HexachlorocyclohexanE) | KS |
| Heptachlor | KS |
| Heptachlor epoxide | KS |
| Methoxychlor | KS |
| Toxaphene (Chlorinated camphene) | KS |
| **Method EPA 624.1** | |
| 1,1,1-Trichloroethane | KS |
| 1,1,2,2-Tetrachloroethane | KS |
| 1,1,2-Trichloroethane | KS |
| 1,1-Dichloroethane | KS |
| 1,1-Dichloroethylene | KS |
| 1,2-Dichlorobenzene (o-Dichlorobenzene) | KS |
| 1,2-Dichloroethane (Ethylene dichloride) | KS |
| 1,2-Dichloropropane | KS |
| 1,3-Dichlorobenzene | KS |
| 1,4-Dichlorobenzene | KS |
| 2-Chloroethyl vinyl ether | KS |
| Acrolein (Propenal) | KS |
| Acrylonitrile | KS |
| Benzene | KS |
| Bromodichloromethane | KS |
| Bromoform | KS |
| Carbon tetrachloride | KS |
| Chlorobenzene | KS |
| Chlorodibromomethane | KS |
| Chloroethane (Ethyl chloride) | KS |
| Chloroform | KS |
| cis-1,3-Dichloropropene | KS |
| Ethylbenzene | KS |
| Methyl bromide (Bromomethane) | KS |
| Methyl chloride (Chloromethane) | KS |
| Methylene chloride (Dichloromethane) | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***CWA (Non Potable Water)*** | |
| Naphthalene | KS |
| Tetrachloroethylene (Perchloroethylene) | KS |
| Toluene | KS |
| trans-1,2-Dichloroethylene | KS |
| trans-1,3-Dichloropropylene | KS |
| Trichloroethene (Trichloroethylene) | KS |
| Trichlorofluoromethane (Fluorotrichloromethane, Freon 11) | KS |
| Vinyl chloride | KS |
| Xylene (total) | KS |
| **Method EPA 625.1** | |
| 1,2,4-Trichlorobenzene | KS |
| 1,2-Dichlorobenzene (o-Dichlorobenzene) | KS |
| 1,3-Dichlorobenzene | KS |
| 1,4-Dichlorobenzene | KS |
| 2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether | KS |
| 2,4,6-Trichlorophenol | KS |
| 2,4-Dichlorophenol | KS |
| 2,4-Dimethylphenol | KS |
| 2,4-Dinitrophenol | KS |
| 2,4-Dinitrotoluene (2,4-DNT) | KS |
| 2,6-Dinitrotoluene (2,6-DNT) | KS |
| 2-Chloronaphthalene | KS |
| 2-Chlorophenol | KS |
| 2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol) | KS |
| 2-Nitrophenol | KS |
| 3,3'-Dichlorobenzidine | KS |
| 4-Bromophenyl phenyl ether | KS |
| 4-Chloro-3-methylphenol | KS |
| 4-Chlorophenyl phenylether | KS |
| 4-Nitrophenol | KS |
| Acenaphthene | KS |
| Acenaphthylene | KS |
| Anthracene | KS |
| Benzidine | KS |
| Benzo(a)anthracene | KS |
| Benzo(a)pyrene | KS |
| Benzo(b)fluoranthene | KS |
| Benzo(g,h,i)perylene | KS |
| Benzo(k)fluoranthene | KS |
| bis(2-Chloroethoxy)methane | KS |
| bis(2-Chloroethyl) ether | KS |
| Butyl benzyl phthalate | KS |
| Chrysene | KS |
| Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP) | KS |
| Dibenz(a,h) anthracene | KS |
| Diethyl phthalate | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***CWA (Non Potable Water)*** | |
| Dimethyl phthalate | KS |
| Di-n-butyl phthalate | KS |
| Di-n-octyl phthalate | KS |
| Fluoranthene | KS |
| Fluorene | KS |
| Hexachlorobenzene | KS |
| Hexachlorobutadiene | KS |
| Hexachloroethane | KS |
| Indeno(1,2,3-cd) pyrene | KS |
| Isophorone | KS |
| Naphthalene | KS |
| Nitrobenzene | KS |
| n-Nitrosodimethylamine | KS |
| n-Nitrosodi-n-propylamine | KS |
| n-Nitrosodiphenylamine | KS |
| Pentachlorophenol | KS |
| Phenanthrene | KS |
| Phenol | KS |
| Pyrene | KS |
| **Method EPA 7470A** | |
| Mercury | KS |
| **Method EPA 7471A** | |
| Mercury | KS |
| **Method EPA 8015D** | |
| Propylene glycol | KS |
| **Method EPA 8260C** | |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | KS |
| 1,3,5-Trichlorobenzene | KS |
| **Method EPA 8270C** | |
| 1-Methylnaphthalene | KS |
| Carbazole | KS |
| **Method OIA 1677-09** | |
| Available Cyanide | KS |
| Free cyanide | KS |
| **Method SM 2310 B-2011** | |
| Acidity, as CaCO3 | KS |
| **Method SM 2320 B-2011** | |
| Alkalinity as CaCO3 | KS |
| **Method SM 2340 B-2011** | |
| Hardness | KS |
| **Method SM 2510 B-2011** | |
| Conductivity | KS |
| **Method SM 2540 B-2011** | |
| Residue-total | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***CWA (Non Potable Water)*** | |
| **Method SM 2540 C-2011** | |
| Residue-filterable (TDS) | KS |
| **Method SM 2540 D-2011** | |
| Residue-nonfilterable (TSS) | KS |
| **Method SM 2540 F-2011** | |
| Residue-settleable | KS |
| **Method SM 3500-Cr B-2011** | |
| Chromium VI | KS |
| **Method SM 4500-Cl G-2011** | |
| Total residual chlorine | KS |
| **Method SM 4500-Cl⁻ E-2011** | |
| Chloride | KS |
| **Method SM 4500-CN⁻ C-2011** | |
| Cyanide | KS |
| **Method SM 4500-CN⁻ E-2011** | |
| Cyanide | KS |
| **Method SM 4500-CN⁻ G-2011** | |
| Amenable cyanide | KS |
| **Method SM 4500-F⁻ C-2011** | |
| Fluoride | KS |
| **Method SM 4500-H+ B-2011** | |
| pH | KS |
| **Method SM 4500-NH3 G-2011** | |
| Ammonia as N | KS |
| **Method SM 4500-P E-2011** | |
| Orthophosphate as P | KS |
| **Method SM 4500-S2⁻ D-2011** | |
| Sulfide | KS |
| **Method SM 5210 B-2011** | |
| Biochemical oxygen demand | KS |
| Carbonaceous BOD, CBOD | KS |
| **Method SM 5310 C-2011** | |
| Total organic carbon | KS |
| **Method SM 5540 C-2011** | |
| Surfactants - MBAS | KS |
| **Method TKN-NH3-CAL** | |
| Organic nitrogen | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| **Method EPA 1010A** | |
| Ignitability | KS |
| **Method EPA 1311** | |
| Toxicity Characteristic Leaching Procedure (TCLP) | KS |
| **Method EPA 1312** | |
| Synthetic Precipitation Leaching Procedure (SPLP) | KS |
| **Method EPA 6010B** | |
| Aluminum | KS |
| Antimony | KS |
| Arsenic | KS |
| Barium | KS |
| Beryllium | KS |
| Boron | KS |
| Cadmium | KS |
| Calcium | KS |
| Chromium | KS |
| Cobalt | KS |
| Copper | KS |
| Iron | KS |
| Lead | KS |
| Lithium | KS |
| Magnesium | KS |
| Manganese | KS |
| Molybdenum | KS |
| Nickel | KS |
| Potassium | KS |
| Selenium | KS |
| Silicon | KS |
| Silver | KS |
| Sodium | KS |
| Strontium | KS |
| Thallium | KS |
| Tin | KS |
| Titanium | KS |
| Vanadium | KS |
| Zinc | KS |
| **Method EPA 6020** | |
| Aluminum | KS |
| Antimony | KS |
| Arsenic | KS |
| Barium | KS |
| Beryllium | KS |
| Cadmium | KS |
| Chromium | KS |
| Cobalt | KS |
| Copper | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| Lead | KS |
| Manganese | KS |
| Molybdenum | KS |
| Nickel | KS |
| Selenium | KS |
| Silver | KS |
| Thallium | KS |
| Thorium | KS |
| Uranium | KS |
| Vanadium | KS |
| Zinc | KS |
| **Method EPA 7196A** | |
| Chromium VI | KS |
| **Method EPA 7470A** | |
| Mercury | KS |
| **Method EPA 7471A** | |
| Mercury | KS |
| **Method EPA 8011** | |
| 1,2-Dibromo-3-chloropropane (DBCP) | KS |
| 1,2-Dibromoethane (EDB, Ethylene dibromide) | KS |
| **Method EPA 8015D** | |
| Diesel range organics (DRO) | KS |
| Ethanol | KS |
| Ethylene glycol | KS |
| Gasoline range organics (GRO) | KS |
| Isobutyl alcohol (2-Methyl-1-propanol) | KS |
| Isopropyl alcohol (2-Propanol, Isopropanol) | KS |
| Methanol | KS |
| n-Butyl alcohol (1-Butanol, n-Butanol) | KS |
| n-Propanol (1-Propanol) | KS |
| Propylene glycol | KS |
| **Method EPA 8081B** | |
| 4,4'-DDD | KS |
| 4,4'-DDE | KS |
| 4,4'-DDT | KS |
| Aldrin | KS |
| alpha-BHC (alpha-Hexachlorocyclohexane) | KS |
| alpha-Chlordane, cis-Chlordane | KS |
| beta-BHC (beta-Hexachlorocyclohexane) | KS |
| Chlordane (tech.)(N.O.S.) | KS |
| delta-BHC | KS |
| Dieldrin | KS |
| Endosulfan I | KS |
| Endosulfan II | KS |
| Endosulfan sulfate | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| Endrin | KS |
| Endrin aldehyde | KS |
| Endrin ketone | KS |
| gamma-BHC (Lindane, gamma-HexachlorocyclohexanE) | KS |
| gamma-Chlordane | KS |
| Heptachlor | KS |
| Heptachlor epoxide | KS |
| Methoxychlor | KS |
| Toxaphene (Chlorinated camphene) | KS |
| **Method EPA 8082A** | |
| Aroclor-1016 (PCB-1016) | KS |
| Aroclor-1221 (PCB-1221) | KS |
| Aroclor-1232 (PCB-1232) | KS |
| Aroclor-1242 (PCB-1242) | KS |
| Aroclor-1248 (PCB-1248) | KS |
| Aroclor-1254 (PCB-1254) | KS |
| Aroclor-1260 (PCB-1260) | KS |
| **Method EPA 8141B** | |
| Atrazine | KS |
| Azinphos-methyl (Guthion) | KS |
| Chlorpyrifos | KS |
| Chlorpyrifos-methyl | KS |
| Demeton-o | KS |
| Demeton-s | KS |
| Diazinon | KS |
| Dichlorovos (DDVP, Dichlorvos) | KS |
| Dimethoate | KS |
| Disulfoton | KS |
| Famphur | KS |
| Malathion | KS |
| Merphos | KS |
| Methyl parathion (Parathion, methyl) | KS |
| Naled | KS |
| Parathion, ethyl | KS |
| Phorate | KS |
| Ronnel | KS |
| Simazine | KS |
| Terbufos | KS |
| Tetrachlorvinphos (Stirophos, Gardona) E-isomer | KS |
| **Method EPA 8151A** | |
| 2,4,5-T | KS |
| 2,4-D | KS |
| 2,4-DB | KS |
| 3,5-Dichlorobenzoic acid | KS |
| Acifluorfen | KS |
| Bentazon | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| Dalapon | KS |
| DCPA di acid degradate | KS |
| Dicamba | KS |
| Dichloroprop (Dichlorprop) | KS |
| Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP) | KS |
| MCPA | KS |
| MCPP | KS |
| Pentachlorophenol | KS |
| Picloram | KS |
| Silvex (2,4,5-TP) | KS |
| **Method EPA 8260C** | |
| 1,1,1,2-Tetrachloroethane | KS |
| 1,1,1-Trichloroethane | KS |
| 1,1,2,2-Tetrachloroethane | KS |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | KS |
| 1,1,2-Trichloroethane | KS |
| 1,1-Dichloroethane | KS |
| 1,1-Dichloroethylene | KS |
| 1,1-Dichloropropene | KS |
| 1,2,3-Trichlorobenzene | KS |
| 1,2,3-Trichloropropane | KS |
| 1,2,4-Trichlorobenzene | KS |
| 1,2,4-Trimethylbenzene | KS |
| 1,2-Dibromo-3-chloropropane (DBCP) | KS |
| 1,2-Dibromoethane (EDB, Ethylene dibromide) | KS |
| 1,2-Dichlorobenzene (o-Dichlorobenzene) | KS |
| 1,2-Dichloroethane (Ethylene dichloride) | KS |
| 1,2-Dichloropropane | KS |
| 1,3,5-Trichlorobenzene | KS |
| 1,3,5-Trimethylbenzene | KS |
| 1,3-Dichlorobenzene | KS |
| 1,3-Dichloropropane | KS |
| 1,4-Dichlorobenzene | KS |
| 1,4-Dioxane (1,4- Diethyleneoxide) | KS |
| 1-Methylnaphthalene | KS |
| 2,2-Dichloropropane | KS |
| 2-Butanone (Methyl ethyl ketone, MEK) | KS |
| 2-Chloroethyl vinyl ether | KS |
| 2-Chlorotoluene | KS |
| 2-Hexanone | KS |
| 2-Methylnaphthalene | KS |
| 4-Chlorotoluene | KS |
| 4-Isopropyltoluene (p-Cymene,p-Isopropyltoluene) | KS |
| 4-Methyl-2-pentanone (MIBK) | KS |
| Acetone | KS |
| Acetonitrile | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| Acrolein (Propenal) | KS |
| Acrylonitrile | KS |
| Allyl chloride (3-Chloropropene) | KS |
| Benzene | KS |
| Bromobenzene | KS |
| Bromochloromethane | KS |
| Bromodichloromethane | KS |
| Bromoform | KS |
| Carbon disulfide | KS |
| Carbon tetrachloride | KS |
| Chlorobenzene | KS |
| Chlorodibromomethane | KS |
| Chloroethane (Ethyl chloride) | KS |
| Chloroform | KS |
| Chloroprene (2-Chloro-1,3-butadiene) | KS |
| cis-1,2-Dichloroethylene | KS |
| cis-1,3-Dichloropropene | KS |
| Cyclohexane | KS |
| Dibromomethane (Methylene bromide) | KS |
| Dichlorodifluoromethane (Freon-12) | KS |
| Diethyl ether | KS |
| Ethyl acetate | KS |
| Ethyl methacrylate | KS |
| Ethylbenzene | KS |
| Hexachlorobutadiene | KS |
| Iodomethane (Methyl iodide) | KS |
| Isobutyl alcohol (2-Methyl-1-propanol) | KS |
| Isopropylbenzene | KS |
| Methacrylonitrile | KS |
| Methyl acetate | KS |
| Methyl bromide (Bromomethane) | KS |
| Methyl chloride (Chloromethane) | KS |
| Methyl methacrylate | KS |
| Methyl tert-butyl ether (MTBE) | KS |
| Methylcyclohexane | KS |
| Methylene chloride (Dichloromethane) | KS |
| m-Xylene | KS |
| Naphthalene | KS |
| n-Butyl alcohol (1-Butanol, n-Butanol) | KS |
| n-Butylbenzene | KS |
| n-Hexane | KS |
| n-Propylbenzene | KS |
| o-Xylene | KS |
| Propionitrile (Ethyl cyanide) | KS |
| p-Xylene | KS |
| sec-Butylbenzene | KS |
| Styrene | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| tert-Butyl alcohol | KS |
| tert-Butylbenzene | KS |
| Tetrachloroethylene (Perchloroethylene) | KS |
| Tetrahydrofuran (THF) | KS |
| Toluene | KS |
| trans-1,2-Dichloroethylene | KS |
| trans-1,3-Dichloropropylene | KS |
| trans-1,4-Dichloro-2-butene | KS |
| Trichloroethene (Trichloroethylene) | KS |
| Trichlorofluoromethane (Fluorotrichloromethane, Freon 11) | KS |
| Vinyl acetate | KS |
| Vinyl chloride | KS |
| Xylene (total) | KS |
| **Method EPA 8270C** | |
| 1,2,4,5-Tetrachlorobenzene | KS |
| 1,2,4-Trichlorobenzene | KS |
| 1,2-Dichlorobenzene (o-Dichlorobenzene) | KS |
| 1,2-Diphenylhydrazine | KS |
| 1,3,5-Trinitrobenzene (1,3,5-TNB) | KS |
| 1,3-Dichlorobenzene | KS |
| 1,3-Dinitrobenzene (1,3-DNB) | KS |
| 1,4-Dichlorobenzene | KS |
| 1,4-Naphthoquinone | KS |
| 1,4-Phenylenediamine | KS |
| 1-Methylnaphthalene | KS |
| 1-Naphthylamine | KS |
| 2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether | KS |
| 2,3,4,6-Tetrachlorophenol | KS |
| 2,4,5-Trichlorophenol | KS |
| 2,4,6-Trichlorophenol | KS |
| 2,4-Dichlorophenol | KS |
| 2,4-Dimethylphenol | KS |
| 2,4-Dinitrophenol | KS |
| 2,4-Dinitrotoluene (2,4-DNT) | KS |
| 2,6-Dichlorophenol | KS |
| 2,6-Dinitrotoluene (2,6-DNT) | KS |
| 2-Acetylaminofluorene | KS |
| 2-Chloronaphthalene | KS |
| 2-Chlorophenol | KS |
| 2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol) | KS |
| 2-Methylaniline (o-Toluidine) | KS |
| 2-Methylaniline (o-Toluidine) | KS |
| 2-Methylnaphthalene | KS |
| 2-Methylphenol (o-Cresol) | KS |
| 2-Naphthylamine | KS |
| 2-Nitroaniline | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| 2-Nitrophenol | KS |
| 2-Picoline (2-Methylpyridine) | KS |
| 3,3'-Dichlorobenzidine | KS |
| 3,3'-Dimethylbenzidine | KS |
| 3-Methylcholanthrene | KS |
| 3-Methylphenol (m-Cresol) | KS |
| 3-Nitroaniline | KS |
| 4-Aminobiphenyl | KS |
| 4-Bromophenyl phenyl ether | KS |
| 4-Chloro-3-methylphenol | KS |
| 4-Chloroaniline | KS |
| 4-Chlorophenyl phenylether | KS |
| 4-Dimethyl aminoazobenzene | KS |
| 4-Methylphenol (p-Cresol) | KS |
| 4-Nitroaniline | KS |
| 4-Nitrophenol | KS |
| 4-Nitroquinoline 1-oxide | KS |
| 5-Nitro-o-toluidine | KS |
| 7,12-Dimethylbenz(a) anthracene | KS |
| a-a-Dimethylphenethylamine | KS |
| Acenaphthene | KS |
| Acenaphthylene | KS |
| Acetophenone | KS |
| Aniline | KS |
| Anthracene | KS |
| Aramite | KS |
| Atrazine | KS |
| Benzaldehyde | KS |
| Benzidine | KS |
| Benzo(a)anthracene | KS |
| Benzo(a)pyrene | KS |
| Benzo(b)fluoranthene | KS |
| Benzo(g,h,i)perylene | KS |
| Benzo(k)fluoranthene | KS |
| Benzoic acid | KS |
| Benzyl alcohol | KS |
| Biphenyl | KS |
| bis(2-Chloroethoxy)methane | KS |
| bis(2-Chloroethyl) ether | KS |
| Butyl benzyl phthalate | KS |
| Caprolactam | KS |
| Carbazole | KS |
| Chlorobenzilate | KS |
| Chrysene | KS |
| Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP) | KS |
| Diallate | KS |
| Dibenz(a,h) anthracene | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| Dibenzofuran | KS |
| Diethyl phthalate | KS |
| Dimethoate | KS |
| Dimethyl phthalate | KS |
| Di-n-butyl phthalate | KS |
| Di-n-octyl phthalate | KS |
| Diphenylamine | KS |
| Disulfoton | KS |
| Ethyl methanesulfonate | KS |
| Famphur | KS |
| Fluoranthene | KS |
| Fluorene | KS |
| Hexachlorobenzene | KS |
| Hexachlorobutadiene | KS |
| Hexachlorocyclopentadiene | KS |
| Hexachloroethane | KS |
| Hexachlorophene | KS |
| Hexachloropropene | KS |
| Indeno(1,2,3-cd) pyrene | KS |
| Isodrin | KS |
| Isophorone | KS |
| Isosafrole | KS |
| Kepone | KS |
| Methapyrilene | KS |
| Methyl methanesulfonate | KS |
| Methyl parathion (Parathion, methyl) | KS |
| Naphthalene | KS |
| Nitrobenzene | KS |
| n-Nitrosodiethylamine | KS |
| n-Nitrosodimethylamine | KS |
| n-Nitroso-di-n-butylamine | KS |
| n-Nitrosodi-n-propylamine | KS |
| n-Nitrosodiphenylamine | KS |
| n-Nitrosomethylethalamine | KS |
| n-Nitrosomorpholine | KS |
| n-Nitrosopiperidine | KS |
| n-Nitrosopyrrolidine | KS |
| o,o,o-Triethyl phosphorothioate | KS |
| Parathion, ethyl | KS |
| Pentachlorobenzene | KS |
| Pentachloronitrobenzene | KS |
| Pentachlorophenol | KS |
| Phenacetin | KS |
| Phenanthrene | KS |
| Phenol | KS |
| Phorate | KS |
| p-Phenylenediamine | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Non Potable Water)*** | |
| Pronamide (Kerb) | KS |
| Pyrene | KS |
| Pyridine | KS |
| Safrole | KS |
| Sulfotep (Tetraethyl dithiopyrophosphate) | KS |
| Thionazin (Zinophos) | KS |
| **Method EPA 8270C SIM** | |
| 1-Methylnaphthalene | KS |
| 2-Methylnaphthalene | KS |
| Acenaphthene | KS |
| Acenaphthylene | KS |
| Anthracene | KS |
| Benzo(a)anthracene | KS |
| Benzo(a)pyrene | KS |
| Benzo(b)fluoranthene | KS |
| Benzo(g,h,i)perylene | KS |
| Benzo(k)fluoranthene | KS |
| Chrysene | KS |
| Dibenz(a,h) anthracene | KS |
| Fluoranthene | KS |
| Fluorene | KS |
| Indeno(1,2,3-cd) pyrene | KS |
| Naphthalene | KS |
| Phenanthrene | KS |
| Pyrene | KS |
| **Method EPA 9012A** | |
| Amenable cyanide | KS |
| Cyanide | KS |
| **Method EPA 9038** | |
| Sulfate | KS |
| **Method EPA 9056A** | |
| Bromide | KS |
| Chloride | KS |
| Fluoride | KS |
| Iodide | KS |
| Nitrate | KS |
| Nitrite | KS |
| Sulfate | KS |
| **Method EPA 9066** | |
| Total phenolics | KS |
| **Method EPA 9095B** | |
| Paint Filter Test | KS |
| **Method EPA RSK-175 (GC/FID)** | |
| Ethane | KS |
| Ethene | KS |

## Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** Page 17 of 26

Pace Analytical Services, Inc - Indianapolis IN **Primary AB**

**Program/Matrix:** ***RCRA (Non Potable Water)***

Methane KS

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| **Method EPA 1010A** | |
| Ignitability | KS |
| **Method EPA 1311** | |
| Toxicity Characteristic Leaching Procedure (TCLP) | KS |
| **Method EPA 1312** | |
| Synthetic Precipitation Leaching Procedure (SPLP) | KS |
| **Method EPA 6010B** | |
| Aluminum | KS |
| Antimony | KS |
| Arsenic | KS |
| Barium | KS |
| Beryllium | KS |
| Boron | KS |
| Cadmium | KS |
| Calcium | KS |
| Chromium | KS |
| Cobalt | KS |
| Copper | KS |
| Iron | KS |
| Lead | KS |
| Magnesium | KS |
| Manganese | KS |
| Molybdenum | KS |
| Nickel | KS |
| Potassium | KS |
| Selenium | KS |
| Silver | KS |
| Sodium | KS |
| Strontium | KS |
| Thallium | KS |
| Tin | KS |
| Titanium | KS |
| Vanadium | KS |
| Zinc | KS |
| **Method EPA 6020** | |
| Aluminum | KS |
| Antimony | KS |
| Arsenic | KS |
| Barium | KS |
| Beryllium | KS |
| Cadmium | KS |
| Chromium | KS |
| Cobalt | KS |
| Copper | KS |
| Lead | KS |
| Manganese | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| Nickel | KS |
| Selenium | KS |
| Silver | KS |
| Thallium | KS |
| Vanadium | KS |
| Zinc | KS |
| **Method EPA 7196A** | |
| Chromium VI | KS |
| **Method EPA 7470A** | |
| Mercury | KS |
| **Method EPA 7471A** | |
| Mercury | KS |
| **Method EPA 8015D** | |
| Diesel range organics (DRO) | KS |
| Ethanol | KS |
| Ethylene glycol | KS |
| Gasoline range organics (GRO) | KS |
| Isobutyl alcohol (2-Methyl-1-propanol) | KS |
| Isopropyl alcohol (2-Propanol, Isopropanol) | KS |
| Methanol | KS |
| n-Butyl alcohol (1-Butanol, n-Butanol) | KS |
| n-Propanol (1-Propanol) | KS |
| Propylene glycol | KS |
| **Method EPA 8081B** | |
| 4,4'-DDD | KS |
| 4,4'-DDE | KS |
| 4,4'-DDT | KS |
| Aldrin | KS |
| alpha-BHC (alpha-Hexachlorocyclohexane) | KS |
| alpha-Chlordane, cis-Chlordane | KS |
| beta-BHC (beta-Hexachlorocyclohexane) | KS |
| Chlordane (tech.)(N.O.S.) | KS |
| delta-BHC | KS |
| Dieldrin | KS |
| Endosulfan I | KS |
| Endosulfan II | KS |
| Endosulfan sulfate | KS |
| Endrin | KS |
| Endrin aldehyde | KS |
| Endrin ketone | KS |
| gamma-BHC (Lindane, gamma-HexachlorocyclohexanE) | KS |
| gamma-Chlordane | KS |
| Heptachlor | KS |
| Heptachlor epoxide | KS |
| Methoxychlor | KS |
| Toxaphene (Chlorinated camphene) | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| **Method EPA 8082A** | |
| Aroclor-1016 (PCB-1016) | KS |
| Aroclor-1221 (PCB-1221) | KS |
| Aroclor-1232 (PCB-1232) | KS |
| Aroclor-1242 (PCB-1242) | KS |
| Aroclor-1248 (PCB-1248) | KS |
| Aroclor-1254 (PCB-1254) | KS |
| Aroclor-1260 (PCB-1260) | KS |
| **Method EPA 8141B** | |
| Atrazine | KS |
| Azinphos-methyl (Guthion) | KS |
| Chlorpyrifos | KS |
| Chlorpyrifos-methyl | KS |
| Demeton-o | KS |
| Demeton-s | KS |
| Diazinon | KS |
| Dichlorovos (DDVP, Dichlorvos) | KS |
| Dimethoate | KS |
| Disulfoton | KS |
| Famphur | KS |
| Malathion | KS |
| Merphos | KS |
| Methyl parathion (Parathion, methyl) | KS |
| Naled | KS |
| Parathion, ethyl | KS |
| Phorate | KS |
| Ronnel | KS |
| Simazine | KS |
| Terbufos | KS |
| Tetrachlorvinphos (Stirophos, Gardona) E-isomer | KS |
| **Method EPA 8151A** | |
| 2,4,5-T | KS |
| 2,4-D | KS |
| 2,4-DB | KS |
| 3,5-Dichlorobenzoic acid | KS |
| Acifluorfen | KS |
| Bentazon | KS |
| Dalapon | KS |
| DCPA di acid degradate | KS |
| Dicamba | KS |
| Dichloroprop (Dichlorprop) | KS |
| Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP) | KS |
| MCPA | KS |
| MCPP | KS |
| Pentachlorophenol | KS |
| Picloram | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| Silvex (2,4,5-TP) | KS |
| **Method EPA 8260C** | |
| 1,1,1,2-Tetrachloroethane | KS |
| 1,1,1-Trichloroethane | KS |
| 1,1,2,2-Tetrachloroethane | KS |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | KS |
| 1,1,2-Trichloroethane | KS |
| 1,1-Dichloroethane | KS |
| 1,1-Dichloroethylene | KS |
| 1,1-Dichloropropene | KS |
| 1,2,3-Trichlorobenzene | KS |
| 1,2,3-Trichloropropane | KS |
| 1,2,4-Trichlorobenzene | KS |
| 1,2,4-Trimethylbenzene | KS |
| 1,2-Dibromo-3-chloropropane (DBCP) | KS |
| 1,2-Dibromoethane (EDB, Ethylene dibromide) | KS |
| 1,2-Dichlorobenzene (o-Dichlorobenzene) | KS |
| 1,2-Dichloroethane (Ethylene dichloride) | KS |
| 1,2-Dichloropropane | KS |
| 1,3,5-Trichlorobenzene | KS |
| 1,3,5-Trimethylbenzene | KS |
| 1,3-Dichlorobenzene | KS |
| 1,3-Dichloropropane | KS |
| 1,4-Dichlorobenzene | KS |
| 1,4-Dioxane (1,4- Diethyleneoxide) | KS |
| 1-Methylnaphthalene | KS |
| 2,2-Dichloropropane | KS |
| 2-Butanone (Methyl ethyl ketone, MEK) | KS |
| 2-Chloroethyl vinyl ether | KS |
| 2-Chlorotoluene | KS |
| 2-Hexanone | KS |
| 2-Methylnaphthalene | KS |
| 4-Chlorotoluene | KS |
| 4-Isopropyltoluene (p-Cymene,p-Isopropyltoluene) | KS |
| 4-Methyl-2-pentanone (MIBK) | KS |
| Acetone | KS |
| Acetonitrile | KS |
| Acrolein (Propenal) | KS |
| Acrylonitrile | KS |
| Allyl chloride (3-Chloropropene) | KS |
| Benzene | KS |
| Bromobenzene | KS |
| Bromochloromethane | KS |
| Bromodichloromethane | KS |
| Bromoform | KS |
| Carbon disulfide | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| Carbon tetrachloride | KS |
| Chlorobenzene | KS |
| Chlorodibromomethane | KS |
| Chloroethane (Ethyl chloride) | KS |
| Chloroform | KS |
| cis-1,2-Dichloroethylene | KS |
| cis-1,3-Dichloropropene | KS |
| Dibromomethane (Methylene bromide) | KS |
| Dichlorodifluoromethane (Freon-12) | KS |
| Diethyl ether | KS |
| Ethyl acetate | KS |
| Ethyl methacrylate | KS |
| Ethylbenzene | KS |
| Hexachlorobutadiene | KS |
| Iodomethane (Methyl iodide) | KS |
| Isopropylbenzene | KS |
| Methacrylonitrile | KS |
| Methyl bromide (Bromomethane) | KS |
| Methyl chloride (Chloromethane) | KS |
| Methyl methacrylate | KS |
| Methyl tert-butyl ether (MTBE) | KS |
| Methylene chloride (Dichloromethane) | KS |
| m-Xylene | KS |
| Naphthalene | KS |
| n-Butyl alcohol (1-Butanol, n-Butanol) | KS |
| n-Butylbenzene | KS |
| n-Hexane | KS |
| n-Propylbenzene | KS |
| o-Xylene | KS |
| Propionitrile (Ethyl cyanide) | KS |
| p-Xylene | KS |
| sec-Butylbenzene | KS |
| Styrene | KS |
| tert-Butyl alcohol | KS |
| tert-Butylbenzene | KS |
| Tetrachloroethylene (Perchloroethylene) | KS |
| Toluene | KS |
| trans-1,2-Dichloroethylene | KS |
| trans-1,3-Dichloropropylene | KS |
| trans-1,4-Dichloro-2-butene | KS |
| Trichloroethene (Trichloroethylene) | KS |
| Trichlorofluoromethane (Fluorotrichloromethane, Freon 11) | KS |
| Vinyl acetate | KS |
| Vinyl chloride | KS |
| Xylene (total) | KS |

**Method EPA 8270C**

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| 1,2,4,5-Tetrachlorobenzene | KS |
| 1,2,4-Trichlorobenzene | KS |
| 1,2-Dichlorobenzene (o-Dichlorobenzene) | KS |
| 1,2-Diphenylhydrazine | KS |
| 1,3-Dichlorobenzene | KS |
| 1,3-Dinitrobenzene (1,3-DNB) | KS |
| 1,4-Dichlorobenzene | KS |
| 1,4-Naphthoquinone | KS |
| 1,4-Phenylenediamine | KS |
| 1-Methylnaphthalene | KS |
| 1-Naphthylamine | KS |
| 2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether | KS |
| 2,3,4,6-Tetrachlorophenol | KS |
| 2,4,5-Trichlorophenol | KS |
| 2,4,6-Trichlorophenol | KS |
| 2,4-Dichlorophenol | KS |
| 2,4-Dimethylphenol | KS |
| 2,4-Dinitrophenol | KS |
| 2,4-Dinitrotoluene (2,4-DNT) | KS |
| 2,6-Dichlorophenol | KS |
| 2,6-Dinitrotoluene (2,6-DNT) | KS |
| 2-Acetylaminofluorene | KS |
| 2-Chloronaphthalene | KS |
| 2-Chlorophenol | KS |
| 2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol) | KS |
| 2-Methylaniline (o-Toluidine) | KS |
| 2-Methylaniline (o-Toluidine) | KS |
| 2-Methylnaphthalene | KS |
| 2-Methylphenol (o-Cresol) | KS |
| 2-Naphthylamine | KS |
| 2-Nitroaniline | KS |
| 2-Nitrophenol | KS |
| 2-Picoline (2-Methylpyridine) | KS |
| 3,3'-Dichlorobenzidine | KS |
| 3,3'-Dimethylbenzidine | KS |
| 3-Methylcholanthrene | KS |
| 3-Methylphenol (m-Cresol) | KS |
| 3-Nitroaniline | KS |
| 4-Aminobiphenyl | KS |
| 4-Bromophenyl phenyl ether | KS |
| 4-Chloro-3-methylphenol | KS |
| 4-Chloroaniline | KS |
| 4-Chlorophenyl phenylether | KS |
| 4-Dimethyl aminoazobenzene | KS |
| 4-Methylphenol (p-Cresol) | KS |
| 4-Nitroaniline | KS |
| 4-Nitrophenol | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| 4-Nitroquinoline 1-oxide | KS |
| 5-Nitro-o-toluidine | KS |
| 7,12-Dimethylbenz(a) anthracene | KS |
| a-a-Dimethylphenethylamine | KS |
| Acenaphthene | KS |
| Acenaphthylene | KS |
| Acetophenone | KS |
| Aniline | KS |
| Anthracene | KS |
| Aramite | KS |
| Benzidine | KS |
| Benzo(a)anthracene | KS |
| Benzo(a)pyrene | KS |
| Benzo(b)fluoranthene | KS |
| Benzo(g,h,i)perylene | KS |
| Benzo(k)fluoranthene | KS |
| Benzoic acid | KS |
| Benzyl alcohol | KS |
| bis(2-Chloroethoxy)methane | KS |
| bis(2-Chloroethyl) ether | KS |
| Butyl benzyl phthalate | KS |
| Carbazole | KS |
| Chlorobenzilate | KS |
| Chrysene | KS |
| Di(2-ethylhexyl) phthalate (bis(2-Ethylhexyl)phthalate, DEHP) | KS |
| Diallate | KS |
| Dibenz(a,h) anthracene | KS |
| Dibenzofuran | KS |
| Diethyl phthalate | KS |
| Dimethoate | KS |
| Dimethyl phthalate | KS |
| Di-n-butyl phthalate | KS |
| Di-n-octyl phthalate | KS |
| Diphenylamine | KS |
| Disulfoton | KS |
| Ethyl methanesulfonate | KS |
| Famphur | KS |
| Fluoranthene | KS |
| Fluorene | KS |
| Hexachlorobenzene | KS |
| Hexachlorobutadiene | KS |
| Hexachlorocyclopentadiene | KS |
| Hexachloroethane | KS |
| Hexachlorophene | KS |
| Hexachloropropene | KS |
| Indeno(1,2,3-cd) pyrene | KS |
| Isodrin | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| Isophorone | KS |
| Isosafrole | KS |
| Kepone | KS |
| Methapyrilene | KS |
| Methyl methanesulfonate | KS |
| Methyl parathion (Parathion, methyl) | KS |
| Naphthalene | KS |
| Nitrobenzene | KS |
| n-Nitrosodiethylamine | KS |
| n-Nitrosodimethylamine | KS |
| n-Nitroso-di-n-butylamine | KS |
| n-Nitrosodi-n-propylamine | KS |
| n-Nitrosodiphenylamine | KS |
| n-Nitrosomethylethalamine | KS |
| n-Nitrosomorpholine | KS |
| n-Nitrosopiperidine | KS |
| n-Nitrosopyrrolidine | KS |
| o,o,o-Triethyl phosphorothioate | KS |
| Parathion, ethyl | KS |
| Pentachlorobenzene | KS |
| Pentachloronitrobenzene | KS |
| Pentachlorophenol | KS |
| Phenacetin | KS |
| Phenanthrene | KS |
| Phenol | KS |
| Phorate | KS |
| Pronamide (Kerb) | KS |
| Pyrene | KS |
| Pyridine | KS |
| Safrole | KS |
| Sulfotep (Tetraethyl dithiopyrophosphate) | KS |
| Thionazin (Zinophos) | KS |
| **Method EPA 8270C SIM** | |
| 1-Methylnaphthalene | KS |
| 2-Methylnaphthalene | KS |
| Acenaphthene | KS |
| Acenaphthylene | KS |
| Anthracene | KS |
| Benzo(a)anthracene | KS |
| Benzo(a)pyrene | KS |
| Benzo(b)fluoranthene | KS |
| Benzo(g,h,i)perylene | KS |
| Benzo(k)fluoranthene | KS |
| Chrysene | KS |
| Dibenz(a,h) anthracene | KS |
| Fluoranthene | KS |

# Attachment 6: Pace Analytical Services Indianapolis Laboratory Accreditation (cont.)

**EPA Number:** ***IN00043*** **Scope of Accreditation for Certification Number:** **E-10177** 

Pace Analytical Services, Inc - Indianapolis IN

| | Primary AB |
|---|---|
| **Program/Matrix:** ***RCRA (Solid & Hazardous Material)*** | |
| Fluorene | KS |
| Indeno(1,2,3-cd) pyrene | KS |
| Naphthalene | KS |
| Phenanthrene | KS |
| Pyrene | KS |
| **Method EPA 9012A** | |
| Amenable cyanide | KS |
| Cyanide | KS |
| **Method EPA 9045C** | |
| pH | KS |
| **Method EPA 9066** | |
| Total phenolics | KS |
| **Method EPA 9095B** | |
| Paint Filter Test | KS |

**End of Scope of Accreditation**