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2020 Watershed Characterization Work Plan for Maria Creek Watershed (Hydrologic Unit Code 0512011118)

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WORK PLAN ORGANIZATION

This work plan is an extension of the existing Watershed Assessment and Planning Branch (WAPB), March 2017 Quality Assurance Project Plan (QAPP) for Indiana Surface Water Programs (Surface Water QAPP) (IDEM 2017a) 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).

Section I. Project Management

- Project Objective
- Project or Task Organization and Schedule
- Background and Project or Task Description
- Data Quality Objectives
- Training and Staffing Requirements

Section II. Data Generation and Acquisition

- Sampling Procedures
- Analytical Methods
- Sample and Data Acquisition Requirements
- Quality Control Measures Specific to the Project

Section III. Assessment and Oversight

- External and Internal Checks
- Audits
- Data Quality Assessments
- Quality Assurance and Quality Control Review Reports

Section IV. Data Validation and Usability

- Data Handling and Associated Quality Assurance and Quality Control activities

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LIST OF ACRONYMS

AIMS	Assessment Information Management System
ASTM	American Society for Testing and Materials
AUID	Assessment Unit IDs
CFU	Colony Forming Units
DO	Dissolved Oxygen
DQA	Data Quality Assessment
DQO	Data Quality Objectives
E. coli	*Escherichia coli*
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
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
WAPB	Watershed Assessment and Planning Branch

DEFINITIONS

Assessment Unit	Reaches of waterbodies, with similar features, assigned unique identifiers to which all assessment information for that specific reach is associated and which allow for mapping with geographic information systems
Elutriate	To purify, separate, or remove lighter or finer particles by washing, decanting, and settling.
Geometric site	Sampling site chosen according to its drainage area within a watershed.
Fifteen-(15-)minute pick	A multihabitat macroinvertebrate sampling method in which the one-minute kick sample and fifty-meter sweep sample collected at a site are first combined and elutriated. Macroinvertebrates are then manually removed from the resulting sample for 15 minutes.
Fifty-(50-)meter sweep sample	A multihabitat macroinvertebrate sampling method in which approximately 50 meters (50m) of all available habitat in a stream or river is sampled with a standard 500 micrometer (500 µm) mesh width D-frame dipnet 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.
One-(1-)minute kick sample	A multihabitat macroinvertebrate sampling method in which approximately one square meter (1 m^2) of riffle or run substrate habitat in a stream or river is sampled with a standard 500 micrometer (500 µm) mesh width D-frame dipnet for approximately one (1) minute.
Pour point	The outlet of a subwatershed or the common point where all the water flows out of any given subwatershed.
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.

I. PROJECT MANAGEMENT

A. Project Objective

IDEM selected the Maria Creek watershed (10-digit Hydrologic Unit Code or HUC 0512011118) (see Figure 2, Table 3) for a watershed characterization project. The main objective of the watershed characterization monitoring project is to use an intensive targeted watershed design that characterizes the current condition of an individual watershed. This type of monitoring provides valuable data for the purposes of assessment, TMDL development, watershed planning, and allows for future comparisons to evaluate changes in the water quality within the watershed studied. Selecting a spatial monitoring design, with sufficient sampling density to accurately characterize water quality conditions, is a critical step in the process of developing an adequate local scale watershed study.

The water quality data generated from this monitoring effort is anticipated to provide information needed to characterize the watershed for the TMDL program, for local water quality managers, to identify sources of impairment, to designate critical areas, and to enable users in making valid and informed watershed decisions. By design, this project also adds new stream reaches which allow for assessment of aquatic life use support, recreational use support, and future comparisons to evaluate changes in water quality.

The approved 303(d) list for 2018 submitted to the U.S. EPA (IDEM 2018a) identifies 55.00 miles of impaired streams in the Maria Creek watershed with some reaches affected by multiple impairments. The total number of miles per each impairment in the Maria Creek watershed is reported in the following ways:

- Category 5(a): Impaired Biotic Community (IBC), 22.64 miles
- Category 5(a): Dissolved Oxygen Impaired (DO), 5.14 miles
- Category 5(a): *Escherichia coli (E. coli)*, 55.00 miles

Assessment data have been collected in this watershed from multiple IDEM programs and projects.

B. Project or Task Organization and Schedule

The main project objective is to provide a comprehensive assessment of the Maria Creek watershed streams' capability to support aquatic life and recreational uses. Sampling will begin in November 2019 and end in October 2020. Barring any hazardous weather conditions or unexpected physical barriers to access a site, sampling activities will be conducted for physical, chemical, bacteriological parameters, and biological communities.

Sampling activity timeframes include:

1. Site reconnaissance activities will be completed in June 2019. Reconnaissance activities will be conducted in the office and through physical site visits.
2. Water chemistry will be sampled monthly at all watershed sites during the recreational season, defined as April through October in [327 IAC 2-1-6]. During the months of November through March, only sites at the pour point of each 12-digit HUC will be sampled monthly (six sites for this project). The first sampling event will be conducted in November 2019 and the study will conclude in October 2020.
3. Biological sampling activities will begin in the summer of 2020 and end no later than October 18, 2020. Fish and macroinvertebrate community sampling will be conducted at all watershed sites via the observation, counting, and collection techniques described in the "Sampling Methods and Sample Handling" section of this work plan. Habitat quality will also be assessed at all watershed sites. Fish and macroinvertebrate community collection specific dates cannot be given, since sampling may be postponed due to a high water event resulting in scouring of the stream substrate or instream cover creating non-representative samples. Bacteriological sampling for *E. coli* at all sites in the watershed will take place monthly from April through October of 2020. In addition, *E. coli* samples will be collected five times from each site at equally spaced intervals over a 30-day period during the recreational season of April to October 2020 to determine a geometric mean.

C. Background and Project or Task Description

The Watershed Characterization Monitoring program was instituted to assist in characterizing existing conditions in watersheds throughout the state. The Maria Creek watershed data set will be utilized by the TMDL program, and shared with local watershed groups and any other interested parties. This monitoring will provide data for TMDL development and watershed planning, and will aid in future evaluations of changes within the basin. For this study, the following data will be used for assessment purposes: water chemistry, bacteriological contamination in the form of *E. coli*, fish community, macroinvertebrate assemblages, and habitat evaluations.

D. Data Quality Objectives (DQOs)

The DQO process (U.S. EPA 2006) is a planning tool for data collection activities. The process provides a basis for balancing decision uncertainty with available resources. The DQO process is recommended by U.S. EPA when selecting between two alternatives or deriving an estimate of contamination. 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. Results of the DQO seven step process, for the watershed characterization monitoring of the Maria Creek watershed, are documented in the following seven sections.

1. State the Problem

   Indiana is required 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; and put-and-take trout fishing [327 IAC 2-1-3] in some northern portions of the state. Data from the intensive sampling of the Maria Creek watershed is needed to fully characterize the current water quality of the watershed. This project will gather water chemistry, bacteriological, biological (fish and macroinvertebrates), and habitat data for the purpose of assessing the designated use attainment status of the Maria Creek watershed.

2. Identify the Goals of the Study

   The main objective of this study is to fully assess whether the surface waters in this watershed are supporting or nonsupporting for aquatic life use and recreational use. In addition, the data from the watershed characterization monitoring will be used for TMDL development and may also be used for watershed planning and future comparisons to evaluate changes in water quality within the watershed studied.

3. Identify Information Inputs

   Grab samples will be collected at the surface water sampling locations for *E. coli* and the parameters listed in Table 5. Field measurements (Table 6) will be conducted at each site during each sampling event. Visual field observations will include weather conditions, stream conditions, and percent stream canopy at each sampling location. All samples collected for bacteriological samples will be analyzed for *E. coli* using SM9223B (IDEM 2019a) Idexx Colilert Enzyme Substrate Standard Method. Surface water chemistry samples will be collected monthly, and processed and analyzed by TestAmerica Laboratories, using the analytical methods listed in Table 5. A fish and macroinvertebrate community sample will be collected once at each site with a corresponding habitat evaluation.

4. Define the Boundaries of the Study

The Maria Creek Watershed covers 96.62 square miles and is located in Sullivan and Knox counties. The watershed is approximately 73% Agriculture, 14% Forest, 6% Developed Land (combined types), 5% Pasture/Hay, and 1% other uses. See Figure 1 for the Maria Creek Watershed land use.

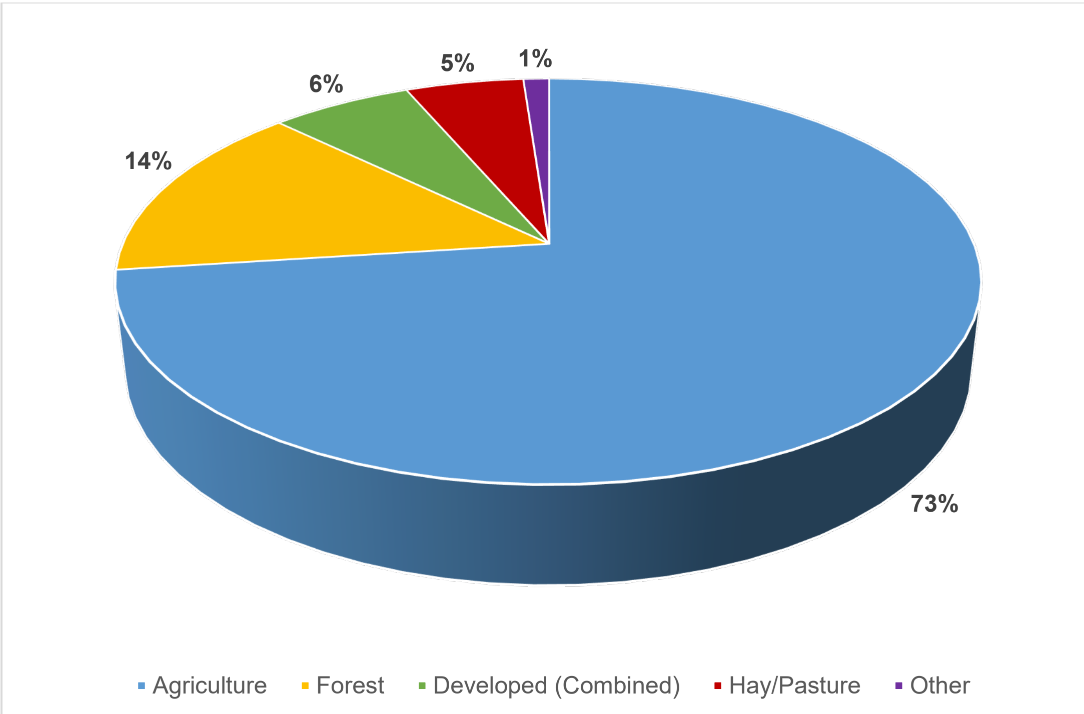
Sampling locations for the 2020 Maria Creek Watershed Characterization study are listed in Table 3 and can be viewed spatially in Figure 2.

Site reconnaissance activities will be completed in June 2019. Sampling activities will begin in November 2019 and will conclude in October 2020. Water chemistry will be sampled monthly during the recreational season, defined as April through October in [327 IAC 2-1-6]. Biological sampling activities will be conducted in the summer of 2020 and end no later than October 18, 2020. Bacteriological sampling activities will be conducted from April through October of 2020.

Sampling activities will not be conducted when stream flow is potentially too dangerous for staff to enter the stream, there are hazardous weather conditions (e.g. thunderstorms or heavy rain in the vicinity), or there are unexpected physical barriers to accessing the site. The field crew chief will make the final determination as to whether or not a stream is safe to enter.

Even when weather conditions and stream flow are safe, sample collections for biological communities may be postponed at a particular site for one to four weeks. The cause of the postponement would be a high water event resulting in scouring of the stream substrate or instream cover creating non-representative samples.

Figure 1. Maria Creek Watershed Land Use



[4] Data collected/calculated from USDA National Agricultural Statistics Service 2018 Cropland Data Layer

5. Develop the Analytical Approach

   Samples will be collected for physical, chemical, and bacteriological parameters, as well as biological communities. Samples will be analyzed for *E.coli* in the IDEM *E. coli* mobile laboratory or IDEM Shadeland laboratory with the Idexx™ Colilert Test. The Colilert Test is a multiple-tube enzyme substrate standard method SM-9223B (Clesceri et al. 2012). Samples will be analyzed for nutrient and general chemistry parameters at TestAmerica Laboratories. The nutrient and general chemistry parameters and respective test methods are listed in Table 5 of this work plan. Field parameters of DO, pH, water temperature, specific conductance, and DO percent saturation will be measured with a datasonde. Turbidity will be measured with a Hach™ turbidity kit.

6. Specify Performance or Acceptance Criteria

   Sampling design error is minimized by utilizing a comprehensive checklist of informational sources, evaluation of historical information, and a thorough watershed presurvey. Described in Section B.1.5.3 of the Surface Water QAPP (IDEM 2017a), this sampling design has been formulated to address data deficiencies and render the optimum amount of data needed to fill gaps in the decision process.

   Good quality data are essential for minimizing decision error. By minimizing both sampling design error and measurement error for physical and biological parameters, more confidence can be placed in the conclusions drawn on the stressors and sources affecting the water quality in the study area.

Site specific aquatic life use and recreational use assessments include program specific controls to identify the introduction of errors. These controls include blanks and duplicates for water chemistry and bacteriological samples; biological site revisits or duplicates; and laboratory controls through verification of species identifications as described in field procedure manuals (IDEM 1992a, 1992b, 2002, 2015, 2017a, 2018c, 2019a, 2019b, 2019c.2019d).

The QA/QC process detects deficiencies in the data collection as set forth in the Surface Water QAPP (IDEM 2017a). The QAPP requires all contract laboratories to adhere to rigorous standards during sample analyses and to provide good quality usable data. Laboratory accreditation is verified before the lab contract is awarded and before the project begins. Laboratory performance studies are reviewed annually in October. Chemists within the WAPB review the laboratory analytical results for quality assurance. Lab QA/QC for each data set is compared against acceptance limits as specified in laboratory methods, the laboratory's QA Manual, the Surface Water QAPP Section B5.3 (Laboratory Quality Control Checks), and the Surface Water QAPP Section D3 (Reconciliation with Data Quality Objectives). The data is validated based on the QA/QC review. Any data which is "Rejected" due to analytical problems or errors will not be used for water quality assessment decisions. Any data flagged as "Estimated" may be used on a case-by-case basis and is noted in the QA/QC report. Criteria for acceptance or rejection of results as well as application of data quality flags is presented in the following Surface Water QAPP tables:

- Table D3-1: Data Qualifiers and Flags
- Table A7-1: Precision and Accuracy Goals for Data Acceptability by Matrix (Precision and accuracy goals with acceptance limits for applicable analytical methods)
- Table B2.1.1.8-2: Field Parameters

Further investigation will be conducted, in response to consistent "rejected" data, to determine the source of error. Field techniques, used during sample collection and preparation along with laboratory procedures, will be subject to evaluation by both the WAPB QA manager and project manager to troubleshoot error introduced throughout the entire data collection process. Corrective actions will be implemented once the source of error is determined.

Sites will be evaluated as supporting or nonsupporting following the decision-making processes described in Indiana's 2020 Consolidated Assessment Listing Methodology (CALM). Indiana's 2020 CALM has not yet been drafted but will be based upon Indiana's 2018 CALM (IDEM 2018b) and the water quality criteria shown in Table 1.

Recreational use attainment decisions will be based on bacteriological criteria developed to protect primary contact recreational activities [327 IAC 2-1-6]. Aquatic life use support decisions will include independent evaluations of biological and chemical data. The fish assemblage data will be evaluated at each site using the appropriate IBI (Simon and Dufour, 2005). Macroinvertebrate multihabitat samples will also be evaluated using a statewide IBI developed for lowest practical taxonomic level identifications.

Indiana narrative biological criteria [327 IAC 2-1-3] states that "(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 that: (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 fish or macroinvertebrate community receives an Index of Biotic Integrity (IBI) score of less than 36 (on a scale of 0-60 for fish and 12-60 for macroinvertebrate communities), which is considered "Poor" or "Very Poor" (IDEM 2018b).

In addition, data for several nutrient parameters will be evaluated with the benchmarks listed below (IDEM 2018b). 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 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, range 4.0-5.0 mg/L
- Percent Saturation
  - Any measurement greater than 120%
- pH:
  - Any measurement greater than 9.0 Standard Units (SU)
  - Measurements consistently at or close to the standard, range 8.7-9.0 SU

Assessment of each site sampled will be reported to U.S. EPA in the 2022 update of Indiana's Integrated Water Monitoring and Assessment Report (Integrated Report). Site-specific data will be 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 2018b, pp. G-46 and G-47).

Table 1. Water Quality Criteria [327 IAC Article 2]

Parameters	Water Quality Criteria	Criterion
E. coli (April-October Recreational season)	≤125 MPN/100 mL	5-Sample Geometric Mean
	≤235 MPN/100 mL	Single Sample Maximum
Total Ammonia (NH_3-N)	Calculated based on pH and Temperature	Calculated CAC
Nitrate+Nitrite-Nitrogen	≤10 mg/L	Human Health point of drinking water intake
Sulfate	Calculated 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 that exceed 9.0 due to photosynthetic activity	Single Reading
Temperature	Varies Monthly	1% Annual; Maximum Limits
Chloride	Calculated based on hardness and sulfate values	Calculated CAC
Dissolved Solids	750 mg/L	Public water supply

MPN = Most Probable Number, CAC = Chronic Aquatic Criterion, S.U. = Standard Units

7. Optimize the Plan for Obtaining Data

   A Modified Geometric Design (OHEPA 1999, 2012) site selection process in Attachment 1 will be used in this study to get the necessary spatial representation of the entire study area. Sites within this watershed have been selected based on a geometric progression of drainage areas and then located to the nearest bridge. Sample sites at road crossings allow for more efficient sampling of the watershed.

E. Training and Staffing Requirements

Table 2. Project Roles, Experience, and Training

Role	Required Training or Experience	Responsibilities	Training References
Project Manager	- AIMS II Database experience - Demonstrated experience in project management and QA/QC procedures	- Establish Project in the AIMS II database - Oversee development of Project Work Plan - Oversee entry and QC of field data - Querying data from AIMS II to determine results not meeting Water Quality Criteria	- IDEM 2017a, 2017b - 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 - Annually review the Principles and Techniques of Electrofishing - Annually review relevant safety procedures - Annually review relevant Standard Operating Procedures (SOP) documents for field operations	- Completion of field data sheets - Taxonomic accuracy - Sampling efficiency and representation - Voucher specimen tracking - Overall operation of the field crew when remote from central office - Adherence to safety and field SOP procedures by crew members - Ensure that multiprobe analyzers are calibrated weekly prior to field sampling activities - Ensure that field sampling equipment is functioning properly and loaded into field vehicles prior to field sampling activities	- YSI 2017 - IDEM 1992a, 1992b, 2002, 2008, 2010a, 2010b, 2015, 2017a, 2018c, 2019b, 2019c, 2019d - Newhouse 1998a, 1998b -YSI 2018
Field Crew Members Biological Community Sampling	- Complete hands-on training for sampling methodology prior to participation in field sampling activities - Review the Principles and Techniques of Electrofishing - Review relevant safety procedures - Review relevant SOP documents for field operations	- Follow all safety and SOP procedures while engaged in field sampling activities - Follow direction of field crew chief while engaged in field sampling activities	- YSI 2017 - IDEM 1992a, 1992b, 2002, 2008, 2010a, 2010b, 2015, 2017a, 2018c, 2019b, 2019c, 2019d - Newhouse 1998a, 1998b - YSI 2018

Role	Required Training or Experience	Responsibilities	Training References
Field Crew Chief – Water Chemistry and/or Bacteriological Sampling	- At least one year of experience in sampling methodology - Annually review relevant safety procedures - Annually review relevant SOP documents for field operations	- Completion of field data sheets - Sampling efficiency and representation - Overall operation of the field crew when remote from central office - Adherence to safety and field SOP procedures by crew members - Ensure that multiprobe analyzers are calibrated weekly prior to field sampling activities - Ensure that field sampling equipment is functioning properly and loaded into field vehicles prior to field sampling activities	- YSI 2017 - IDEM 1997, 2002, 2008, 2010a, 2010b, 2015, 2017a, 2019a - YSI 2018
Field Crew Members – Water Chemistry and/or Bacteriological Sampling	- Complete hands-on training for sampling methodology prior to participation in field sampling activities - Review relevant safety procedures - Review relevant SOP documents for field operations	- Follow all safety and SOP procedures while engaged in field sampling activities - Follow direction of field crew chief while engaged in field sampling activities	- YSI 2017 - IDEM 1997, 2002, 2008, 2010a, 2010b, 2015, 2017a, 2019a - YSI 2018
Laboratory Supervisor – Biological Community Sample Processing	- At least one year of experience in taxonomy of aquatic communities in the region - Annually review relevant safety procedures - Annually review relevant SOP documents for laboratory operations	- Adherence to safety and SOP procedures by laboratory staff - Assist with identification of fish or macroinvertebrate specimens - Verify taxonomic accuracy of samples - Voucher specimen tracking - QC calculations on data sheets, check for completeness - Ensure data are entered into AIMS II correctly	- IDEM 1992a, 1992b, 2008, 2010a, 2010b, 2017b - Newhouse 1998a, 1998b

Role	Required Training or Experience	Responsibilities	Training References
Laboratory Staff – Biological Community Sample Processing	- Complete hands-on training for laboratory sample processing methodology prior to laboratory sample processing activities - Annually review relevant safety procedures and relevant SOP documents for laboratory operations	- Adhere to safety and SOP procedures - Follow Laboratory Supervisor direction while processing samples - Identify fish or macroinvertebrate specimens - Perform necessary calculations on data, enter field sheets	- IDEM 1992a, 1992b, 2008, 2010a, 2010b, 2017b - Newhouse 1998a, 1998b
Laboratory Supervisor – Water Chemistry and/or Bacteriological Sample Processing	- Annually review relevant safety procedures - Annually review relevant SOP documents for field operations	- Adherence to safety and SOP procedures by laboratory staff - Completion of laboratory data sheets - Check data for completeness - Perform all necessary calculations on the data - Ensure that data are entered into the AIMS II Data Base	- IDEM 1997, 2002, 2008, 2010a, 2010b, 2015a, 2017a, 2017b, 2019a - Newhouse 1998a
Quality Assurance Officer	- Familiarity with QA/QC practices and methodologies - Familiarity with the Surface Water QAPP and data qualification methodologies	- Ensure adherence to QA/QC requirements of Surface Water QAPP - Evaluate data collected by sampling crews for adherence to project work plan - Review data collected by field sampling crews for completeness and accuracy - Perform a data quality analysis of data generated by the project - Assign data quality levels based on the data quality analysis - Import data into the AIMS II data base - Ensure that field sampling methodology audits are completed according to WAPB procedures	- IDEM 2017a, 2017b - U.S. EPA 2006

II. DATA GENERATION AND ACQUISITION

A. Sampling Sites and Sampling Design

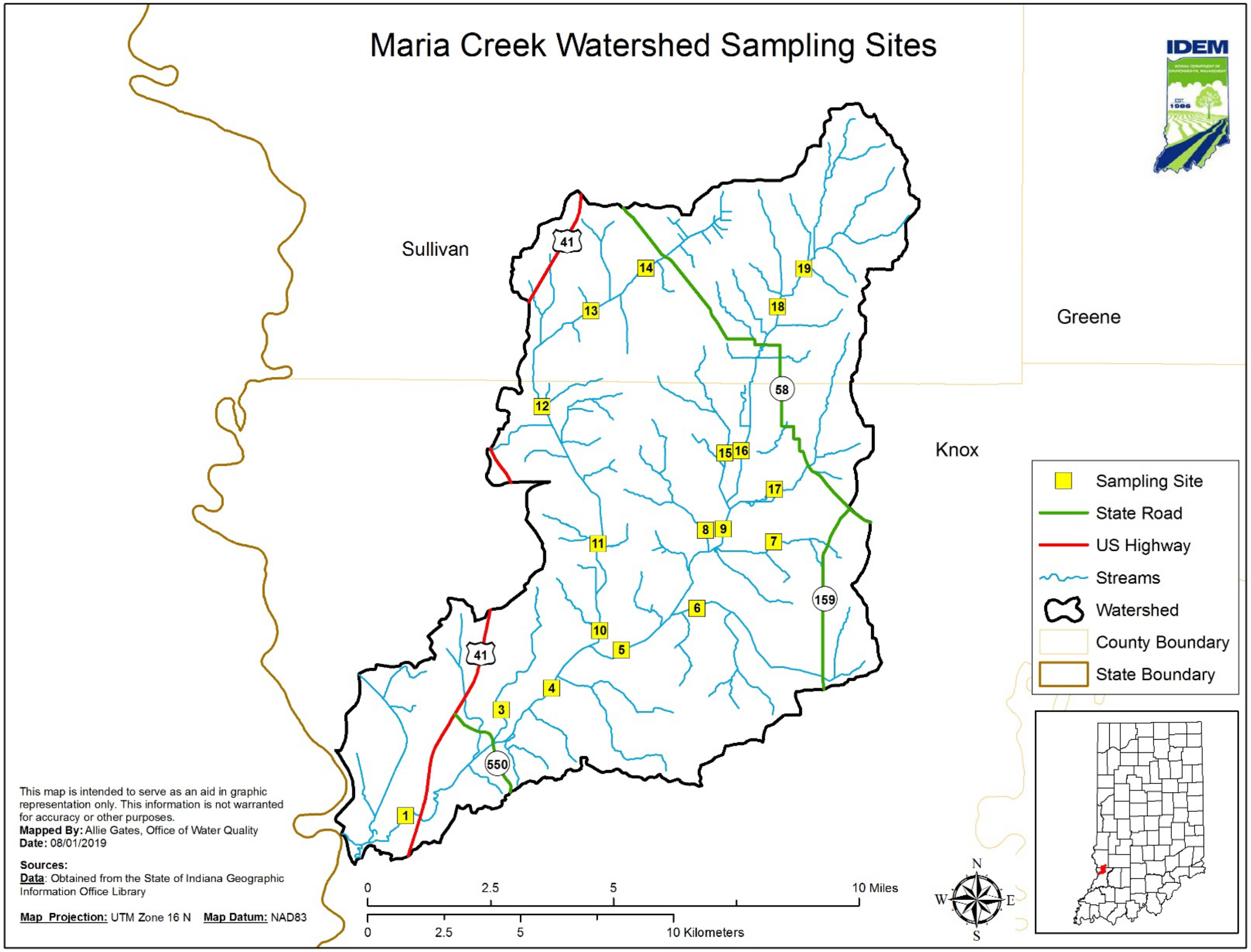
Sample sites will be chosen using a modified geometric site selection process as well as targeted site selection in order to obtain the necessary spatial representation of the entire watershed. Sites within this watershed will be selected based on a geometric progression of drainage areas starting with the area at the mouth of the main stem stream and then working upstream through the tributaries to the headwaters. Monitoring sites will then be established at the nearest bridge. Best professional judgement determined rejection of one site during reconnaissance, because a stream reach previously draining into Maria Creek now appears to drain into a pond. The site located on this stream reach will no longer be sampled.

A more complete description of the Modified Geometric Design Steps for Watershed Characterization Studies selection process is included as Attachment 1. Sample sites will also be chosen at the bridge nearest to the pour point of each 12-digit HUC in the watershed, or chosen to characterize sources for TMDL development.

Site reconnaissance activities will be conducted in-house and through physical site visits. In-house activities include preparation and review of site maps and aerial photographs. Physical site visits include verification of accessibility, safety considerations, equipment needed to properly sample the site, and property owner consultations, if required. All information will be recorded on the IDEM OWQ Site Reconnaissance Form (Attachment 2) and entered into the AIMS II database. Precise coordinates for each site will be determined during the physical site visits or at the beginning of the sampling phase of this project, using a Trimble Juno ™ SB Global Positioning System or a Trimble Juno 3D GPS (IDEM 2015), both of which have an accuracy of two to five meters. These coordinates will be entered into the AIMS II database. Digital photos will also be taken upstream and downstream of the site during reconnaissance. Digital photos will be stored on the shared drive upon return to the office in a specific folder for the Maria Creek watershed characterization. Photos will be labeled with the site number and indication of whether the photo faces upstream or downstream.

"Sampling Locations for Watershed Characterization of Maria Creek" (Table 3) provides a list of the selected sampling sites with the stream name, AUID, AIMS Site Number, County Name, and the latitude and longitude of each site. Figure 2, titled "Maria Creek Watershed Characterization Sampling Area," gives a spatial overview of the site locations for this project.

Figure 2. Maria Creek Watershed Characterization Sampling Area



[1] Map site numbers refer to last two digits of site number from Table 1; e.g., 20T-010 is site 10 on map

Table 3. Sampling Locations for Watershed Characterization of Maria Creek (HUC 0512011118)

Site #	AIMS Site #	Stream Name	Location	County	Latitude	Longitude	AUID
20T-001	WBU-18-0004	Maria Creek	N Old 41	Knox	38.77347	-87.4728	INB11I4_03
20T-003	WBU-18-0006	Cotton Branch	E Springtown Rd	Knox	38.80484	-87.4368	INB11I4_T1004
20T-004	WBU-18-0007	Maria Creek	N Perry Rd	Knox	38.81132	-87.4179	INB11I4_02
20T-005	WBU-18-0008	Maria Creek	N Risley Rd	Knox	38.82277	-87.3917	INB11I2_01
20T-006	WBU-18-0009	Tilley Ditch	E Pepmeir Rd	Knox	38.83516	-87.3632	INB11I2_T1004
20T-007	WBU-18-0010	Tributary of Maria Creek	Lane Rd	Knox	38.85491	-87.3343	INB11I2_T1001
20T-008	WBU-18-0011	Tributary of Maria Creek	E Lower Freelandville Rd	Knox	38.85826	-87.3601	INB11I2_T1002
20T-009	WBU-18-0013	Maria Creek	E Lower Freelandville Rd	Knox	38.85857	-87.3534	INB11I2_01
20T-010	WBU190-0001	Marsh Creek	CR 500 NE Rd	Knox	38.82846	-87.3999	INB11I3_05
20T-011	WBU-18-0012	Marsh Creek	E Hunley Rd	Knox	38.85412	-87.4006	INB11I3_04
20T-012	WBU-18-0015	Marsh Creek	E Moody Rd	Knox	38.89458	-87.4221	INB11I3_03
20T-013	WBU-18-0016	Marsh Creek	S CR 50 E	Sullivan	38.92285	-87.4038	INB11I3_03
20T-014	WBU-18-0017	Marsh Creek	S CR 5 SE	Sullivan	38.93554	-87.383	INB11I3_02
20T-015	WBU-18-0014	Tributary to Maria Creek	Freelandville Rd	Knox	38.88103	-87.3528	INB 11I1_T1004
20T-016	WBU190-0002	Maria Creek	CR 1050 N	Knox	38.88173	-87.3467	INB11I1_01
20T-017	WBU-18-0018	Tributary to Maria Creek	Lane Rd	Knox	38.87045	-87.334	INB11I1_T1005
20T-018	WBU-18-0019	Maria Creek	E CR 1050 S	Sullivan	38.92436	-87.3331	INB11I1_01
20T-019	WBU-18-0020	Maria Creek	E CR 975 S	Sullivan	38.93558	-87.3232	INB11I1_01

[2]20T-### gray shading of the Site # denotes that these are the selected pour points for this project (6 sites).

B. Sampling Methods and Sample Handling

1. Water Chemistry Sampling

   One team of two staff will collect water chemistry grab samples, record water chemistry field measurements, and record physical site descriptions on the IDEM OWQ Stream Sampling Field Data Sheet (Attachment 3). All water chemistry sampling will adhere to the Water Quality Surveys Section Field Procedure Manual Section 2.1 (IDEM 2002). Samples will be preserved as specified below in Table 4, and all applicable holding times will be followed.

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. Bacteriological Sampling

   The bacteriological sampling will be conducted by one team consisting of one or two staff. Samples will be processed in an IDEM fixed or mobile *E. coli* laboratory equipped with all materials and equipment necessary to perform the Colilert® Test Method (Standard Method 9223B), per Project Organization and Schedule (above) (IDEM 2019a). The expected time frame for bacteriological sampling will be April through October of 2020. Staff will collect the samples in a 120 mL presterilized wide-mouth container from the center of flow, if the stream is wadeable, or from the shoreline using a pole sampler, if the stream is not wadeable. This is subject to field staff determination based on available PPE, turbidity, and other factors. However, streams waist deep or shallower are generally considered wadeable. All samples will be consistently labeled, cooled, and held at a temperature less than 10ºC during transport. Samples will be preserved with 0.0008% $Na_2S_2O_3$ for CL_2. While still in the field and at the end of each sampling run, water samples will be processed and analyzed for *E. coli* within the six-hour holding time for collection and transportation, and the two-hour holding time for sample processing (IDEM 2019a).

The IDEM mobile *E. coli* laboratory facilitates *E. coli* testing by eliminating the necessity of transporting samples to distant contract laboratories within a six hour holding time. The IDEM mobile *E. coli* laboratory (van) provides a work space containing sample storage; supplies for Colilert® Quanti-tray testing; and all equipment needed for collecting, preparing, incubating, and analyzing results in the same manner as the IDEM fixed *E. coli* laboratory. All supplies will be obtained from IDEXX Laboratories, Inc., Westbrook, Maine.

3. Fish Community Measurements

The fish community sampling will be completed by teams of three to five staff. Sampling will be performed using various standardized electrofishing methodologies dependent upon the stream size and site accessibility. Fish assemblage assessments will be performed in a sampling reach of 15 times the average wetted width, with a minimum reach of 50 meters and a maximum reach of 500 meters (IDEM 2018c). An attempt will be made to sample all habitat types available within the sample reach to ensure adequate representation of the fish community present at the time of the sampling event. The list of possible electrofishers utilized include: the Smith-Root LR-24 or LR-20B Series backpack electrofishers; the Smith-Root model 1.5KVA electrofishing system; the Smith-Root model 2.5 Generator Powered Pulsator electrofisher, with RCB-6B junction box and rat-tail cathode cable; or Midwest Lake Electrofishing Systems (MLES) Infinity Control Box with MLES junction box and rat-tail cathode cable, assembled in a canoe (if parts of the stream are not wadeable, the system may require the use of a dropper boom array outfitted in a canoe or possibly a 12 foot Loweline™ boat); or for nonwadeable sites, the Smith-Root Type VI-A electrofisher assembled in a 16-foot Loweline™ boat (IDEM 2018c).

Sample collections during high flow or turbid conditions will be avoided due to 1) low collection rates which result in non-representative samples and 2) safety considerations for the sampling team. Sample collection during late autumn will be avoided due to the cooling of water temperature, which may affect the responsiveness of some species to the electrical field. This lack of responsiveness can result in samples that are not representative of the streams' fish assemblage (IDEM 2018c).

Fish will be collected using dipnets with fiberglass handles and netting of 1/8 inch mesh bag. Fish collected in the sampling reach will be sorted by species into baskets or buckets. Young-of-the-year fish less than 20 millimeters (mm) total length will not be retained in the community sample (IDEM 2018c).

For each field taxonomist (generally the crew leader), a complete set of fish vouchers will be retained for each new or different species encountered during the summer sampling season. Vouchers may consist of either preserved specimens or digital images. Prior to processing fish specimens and completion of the IDEM OWQ Fish Collection Data Sheet (Attachment 4), one to two individuals per new species encountered will be preserved in 3.7% formaldehyde solution to serve as representative fish vouchers, if the fish specimens can be positively identified and the individuals for preservation are small enough to fit in a 2000 mL jar. If however, the specimens are too large to preserve, a photo of key characteristics (e.g., fin shape, size, body coloration) will be taken for later examination (IDEM 2018c). Also, prior to sampling, 10% of the sites will be randomly selected for revisiting and a few representative individuals of all species found at the site will be preserved or photographed to serve as vouchers. Taxonomic characteristics for possible species encountered in the basin of interest will be reviewed prior to field work.

Fish specimens should also be preserved if positive identification cannot be made in the field (e.g., those co-occurring like the Striped and Common Shiners or are difficult to identify when immature); individuals that appear to be hybrids or have unusual anomalies; or dead specimens that are taxonomically valuable for undescribed taxa (e.g., Red Shiner or Jade Darter); life history studies; or research projects (IDEM 2018c).

Data will be recorded for nonpreserved fish on the IDEM OWQ Fish Collection Data Sheet (Attachment 4) consisting of the following: number of individuals; minimum and maximum total length in millimeters (mm); mass weight in grams (g); and number of individuals with deformities, eroded fins, lesions, tumors, and other anomalies (DELTs). Once the data is recorded, specimens will be released within the sampling reach from which they were collected, when possible. Data will be recorded for preserved fish specimens following taxonomic identification in the laboratory (IDEM 2018c).

4. Macroinvertebrate Community Measurements

The macroinvertebrate community sampling may be conducted immediately following the fish community sampling event or on a different date by crews of two to three staff. Samples will be collected using a modification of the U.S. EPA Rapid Bioassessment Protocol multihabitat (MHAB) approach using a D-frame dip net with 500 µm mesh (Plafkin et al. 1989; Klemm et al. 1990; Barbour et al. 1999; IDEM 2019b). The IDEM MHAB approach (IDEM 2019b) is composed of a 1-minute “kick” sample within a riffle or run (collected by disturbing one square meter of stream bottom substrate in a riffle or run habitat and collecting the dislodged macroinvertebrates within the dip net) and a 50-meter “sweep” sample of all available habitats (collected by disturbing habitat such as emergent vegetation, root wads, coarse particulate organic matter, depositional zones, logs, and sticks; and collecting the dislodged macroinvertebrates within the dip net). The 50 meter length of riparian corridor that is sampled at each site will be defined using a rangefinder or tape measure. If the stream is too deep to wade, a boat will be used to sample the 50 meter zone along the shoreline with the best available habitat. In addition, a 1-minute kick sample will not be collected if the stream is too deep to wade and there is no available shoreline to collect the sample. However, it is unlikely that the streams encountered during this watershed characterization will be too deep to collect the sample. The 1-minute "kick" and 50-meter "sweep" samples are combined in a bucket of water.

The combined 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 on-site) will conduct a 15-minute pick of macroinvertebrates at a single organism rate endeavoring to pick for maximum organism diversity, and relative abundance through turning and examining 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 (usually genus or species level, if possible); and evaluated using the MHAB macroinvertebrate IBI. Before leaving the site, an IDEM OWQ Macroinvertebrate Header Form (IDEM 2019c, Attachment 5) will be completed for the sample.

5. Habitat Assessments

   Habitat assessments will be completed immediately following macroinvertebrate and fish community sample collections at each site using a slightly modified version of the Ohio Environmental Protection Agency (OHEPA) QHEI, 2006 edition (Rankin 1995; OHEPA 2006). A separate IDEM OWQ Biological QHEI (Attachment 6) must be completed for these two sample types, since the sampling reach length may differ (i.e., 50 meters for macroinvertebrates and between 50 and 500 meters for fish). See IDEM 2019d for a description of the method used in completing the QHEI.

6. Field Parameter Measurements

   Dissolved oxygen (DO), pH, water temperature, specific conductance, and DO percent saturation will be measured with a datasonde, during each sampling event regardless of the sample type collected. Measurement procedures and operation of the datasonde shall be performed according to the manufacturers' manuals (YSI 2017; YSI 2018) and Sections 2.10 – 2.13 of the Water Quality Surveys Section Field Procedure Manual (IDEM 2002). Turbidity will be measured with a Hach™ turbidity kit and the meter number written in the comments under the field parameter measurements. If a Hach™ turbidity kit is not available, the datasonde measurement for turbidity will be recorded and noted in the comments. During each sampling run, field observations from each site and ambient weather conditions at the time of sampling will be noted and documented on IDEM Stream Sampling Field Data Sheets (Attachment 3).

C. Analytical Methods

1. Laboratory Procedure for *E. coli* Measurements:

   All waters sampled will be processed and analyzed for *E. coli* in the IDEM *E. coli* mobile laboratory or IDEM Shadeland laboratory, which is equipped with required materials and equipment necessary for the Idexx™ Colilert Test. The Colilert Test is a multiple-tube enzyme substrate standard method SM-9223B Enzyme Substrate Coliform Test Method (Clesceri et al., 2012). The *E. coli* test method and quantification limit are identified below in Table 5.

2. Nutrient and General Chemistry Parameters Measurements:

   Analyses of nutrient and general chemistry parameters will be performed at TestAmerica Laboratories, in accordance with preapproved test methods and within the allotted time frames. The nutrient and general chemistry parameters, and respective test methods and quantification limits are identified below in Table 5.

Table 5. *E.coli*, Nutrient, and General Chemistry Parameters Test Methods[4]

Parameter	Method	Limits of Quantification	Units
E. coli	SM-9223B Enzyme Substrate Test	1.0	*MPN/100 mL
Alkalinity (as $CaCO_3$)	EPA 310.2	10.0	mg/L
Solids, Total Residue (TS)	SM 2540B	10.0	mg/L
Solids, Nonfilterable Residue (TSS)	SM 2540D	1.0	mg/L
Solids, Filterable Residue (TDS)	SM 2540C	10.0	mg/L
Sulfate (Dissolved)	EPA 300.0	0.05	mg/L
Chloride	EPA 300.0	0.06	mg/L
Hardness (as $CaCO_3$)	SM 2340B	1.41	mg/L
Nitrogen, as Ammonia	SM 4500NH3-D	0.10	mg/L
Nitrogen, Kjeldahl (TKN)	SM4500N(Org)-B	0.30	mg/L
Nitrogen, Nitrate-nitrite	SM4500NO3-F	0.10	mg/L
Phosphorous (Applicable to all)	EPA 365.1	0.05	mg/L
Total Organic Carbon (TOC)	SM 5310C	1.0	mg/L

Parameter	Method	Limits of Quantification	Units
Chemical Oxygen Demand	EPA 410.4	10.0	mg/L
Calcium	EPA 200.7	40	mg/L
Magnesium	EPA 200.7	100	mg/L

* Clesceri et al., 2012. 1 MPN = 1 CFU/100 mL [4] Methods accredited by EPA (State of Illinois, 2018)

3. Field Parameters Measurements:

   The field measurements of DO, temperature, pH, conductivity, and turbidity will be taken each time a sample is collected. The field parameters, respective test methods, and sensitivity limits are identified below in Table 6. The datasonde should be located in the center of flow during sampling. The field staff member collecting the sample should wait for all readings to stabilize before recording the readings on the IDEM Stream Sampling Field Data Sheet (Attachment 3).

Table 6. Field Parameters Test Methods

Parameter	Method	Sensitivity Limit	Units
DO (Datasonde optical)	ASTM D888-09(C)	0.01	mg/L
DO (Winkler Titration)	SM 4500-OC[5]	0.2	mg/L
DO % Saturation (Datasonde optical)	ASTM D888-09(C)	0.01	%
Turbidity (Datasonde)	SM2130B	0.02	NTU
Turbidity (Hach Turbidimeter)	EPA 180.1[5]	0.01	NTU
Specific Conductance (Datasonde)	SM 2510B	1.0	µS/cm
Temperature (Datasonde)	SM 2550B(2)	0.1	°C
Temperature (field meter)	SM 2550B(2)[5]	0.1	°C
pH (Datasonde)	EPA 150.2	0.01	SU
pH (field meter)	SM 4500-HB[5]	0.01	SU

[5] Method used for Field Calibration Verification

D. Quality Control and Custody Requirements

Quality assurance protocols will follow part B5 of the Surface Water QAPP (IDEM 2017a).

1. Field Instrument Testing and Calibrations

   The datasonde will be calibrated prior to each week's sampling (IDEM 2002). Calibration results and drift values will be recorded, maintained, stored, and archived in log books located in the calibration laboratories at the Shadeland facility. The drift value is the difference between two successive calibrations. Field parameter calibrations will conform to the procedures as described in the instrument users' manuals (YSI 2017; YSI 2018). The DO component of the calibration procedure will be conducted using the air calibration method (IDEM 2002, page 74). The unit will be field checked for accuracy once during the week by comparison with a Winkler DO test (IDEM 2002, page 64), Hach™ turbidity, and an Oaktown 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 3) and entered into the AIMS II database. A Winkler DO test will also be conducted at sites where the DO concentration is 4.0 mg/L or less.

2. Field Measurement Data

   In-situ water chemistry field data will be collected in the field using calibrated or standardized equipment and recorded on the IDEM OWQ Stream Sampling Field Data Sheet (Attachment 3). The same staff member will collect and record the data. Calculations may be done in the field or later at the office. Analytical results, which have limited QC checks, will be included in this category. 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 estimating precision, accuracy, and completeness for the project, as described in the Surface Water QAPP (IDEM 2017a Section C1.1 on page 176 and Section A7.2 page 56).

3. Bacteriological Measurement Data

   Analytical results, from an IDEM fixed or mobile *E. coli* laboratory, include QC check sample results from which precision, accuracy, and completeness can be determined for each batch of samples. Raw data will be archived by analytical batch for easy retrieval and review. Chain of custody procedures will be followed, including: time of collection, time of setup, time of reading the results, and time and method of disposal (IDEM 2002). The field staff member who collected the samples signs the chain of custody form upon delivery of samples to the laboratory. Any method deviations will be thoroughly documented in the raw data. All QA/QC samples will be tested according to the following guidelines:

Field Duplicate:	Field Duplicates will be collected at a frequency of one per batch or at least one for every 20 samples collected (≥ 5%).
Field Blank:	Field Blanks will be collected at a frequency of one per batch or at least one for every 20 samples collected (≥ 5%).
Laboratory Blank:	Laboratory Blanks (sterile laboratory water blanks) will be tested at a frequency of one per day.
Positive Control:	Each lot of media will be tested for performance using *E. coli* bacterial cultures.
Negative Controls:	Each lot of media will be tested for performance using non-*E. coli* and noncoliform bacterial cultures.

4. Water Chemistry Measurement Data

   Sample bottles and preservatives will be certified for purity by the manufacturer. Damaged sample bottles and preservatives are not used, and preservatives are not used past their stated expiration date. The purity of sample bottles and preservatives is checked via field blanks. Sample collection containers for each parameter, preservative, and holding time (Table 4) will adhere to U.S. EPA requirements. Field duplicates and matrix spike/matrix spike duplicates shall be collected at the rate of one per sample analysis set or one per every 20 samples, whichever is greater. Additionally, field blank samples will be taken at a rate of one set per sample analysis set or one per every 20 samples, whichever is greater. A chain of custody (COC) form created by the AIMS II database IDEM OWQ COC (Attachment 7) and an IDEM Water Sample Analysis Request form (Attachment 8) accompany each sample set through the analytical process. The field staff member who collected the samples signs the COC form upon delivery of samples to the laboratory. Additionally, a Test America COC form (Attachment 9) will accompany samples sent to the lab. Shipping labels will be created using Test America account numbers.

5. Fish Community Measurement Data

   Fish community sampling revisits will be performed at a rate of 10 percent of the total fish community sites sampled, in this case, two in the watershed (IDEM 2018c). Revisit sampling will be performed with at least two weeks of recovery between the initial and revisit sampling events. The fish community revisit sampling and habitat assessment will be performed with either a partial or complete change in field team members (IDEM 2018c). The resulting IBI and QHEI total score between the initial visit and the revisit will be used to evaluate precision, as described in the QAPP for Biological Community and Habitat Measurements (IDEM 2019e). The IDEM OWQ COC form (Attachment 7) is used to track samples from the field to the laboratory. A field staff member from the crew signs the COC form after sampling is complete, and the samples and COC form are relinquished to a lab custodian to verify that the sampling information is accurate. All raw data are: 1) checked for completeness; 2) utilized to calculate derived data (e.g., total weight of all specimens of a taxon), which is entered into the AIMS II database; and 3) checked again for data entry errors.

6. Macroinvertebrate Community Measurement Data

   Duplicate macroinvertebrate field samples will be collected at a rate of 10 percent of the total macroinvertebrate community sites sampled, in this case, two in the watershed. The macroinvertebrate community duplicate sample and corresponding habitat assessment will be performed by the same team member who performed the original sample, immediately after the initial sample is collected. The 50 meter section of stream and riffle area utilized for the duplicate sample are different from those used for the original sample but should feature as similar habitat types and availability as possible.

This will result in a precision evaluation based on a 10% duplicate of samples collected, as described in the QAPP for Biological Community and Habitat Measurements (IDEM 2019e).

The IDEM OWQ COC form (Attachment 7) is used to track samples from the field to the laboratory. A field staff member from the crew completes the OWQ COC form after sampling is complete. After completion of weekly field sampling activities, the OWQ COC form is used by the laboratory custodian to check in samples prior to long-term storage. Laboratory identifications and QA/QC of taxonomic work is maintained by the laboratory supervisor of the Probabilistic Monitoring Section of IDEM.

III. ASSESSMENT AND OVERSIGHT

A. Field and laboratory performance and system audits

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 of field and laboratory duplicate (IDEM 2017a, pp. 56, 61-63); accuracy measurements by percent of recovery of matrix spike and matrix spike duplicate samples analyzed in the laboratory (IDEM 2017a, pp. 58, 61-63); and completeness measurements by the percent of planned samples that are actually collected, analyzed, reported, and usable for the project (IDEM 2017a, page 58). Fish taxonomic identifications made by IDEM staff in the laboratory may be verified by regionally recognized non-IDEM freshwater fish taxonomists. Ten percent of macroinvertebrate samples (the initial samples taken at sites where duplicate samples were collected) will be sent off to Rithron Associates, Inc. (Missoula, MT) for verification by an outside taxonomist (IDEM 2019c).

Laboratory audits are performed at the beginning of a laboratory contract and at least once a year during the contract. The audit includes any or all of the operational quality control elements of the laboratory's quality assurance system. All applicable elements of this quality assurance project plan and the laboratory contract requirements are addressed including, but not limited to, sampling handling, sample analysis, record keeping, preventative maintenance, proficiency testing, personnel requirements, training, and workload. (IDEM 2017a, pp. 177—178).

Field audits will be conducted biannually by staff of the IDEM WAPB to ensure that sampling activities adhere to approved SOPs. Audits will be systematically conducted by WAPB staff to include all WAPB personnel that engage in field sampling activities. WAPB field staff involved with sample collection and preparation will be evaluated by staff trained in the associated sampling SOPs, and in the processes related to conducting an audit. Staff 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, and implemented by, field staff as a result of the audit process.

Quality assurance reports are submitted by the QA officer upon completion of the data validation of a dataset, 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 2017a, page 179).

B. Data Quality Assessment Levels

The samples and various types of data collected by this program will be intended to meet the quality assurance criteria and rated DQA Level 3, as described in the Surface Water QAPP (IDEM 2017a, page 182).

IV. DATA VALIDATION AND USABILITY

Quality assurance reports to management, and data validation and usability are also important components of Indiana's Surface Water QAPP which ensures good quality data for this project. Quality assurance reports are submitted by the QA officer upon completion of the data validation of a dataset to the program manager or WAPB branch chief. This is done to ensure that problems arising during the sampling and analysis phases of the project are investigated and corrected (IDEM 2017a, page 179). As described in Section D of the Surface Water QAPP (IDEM 2017a), 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 so as to completely document the calibration, analysis, QC measures, and calculations). These steps allow users to assess the data to ensure the project DQOs have been met.

A. Quality Assurance, Data Qualifiers, and Flags

The various data qualifiers and flags will be used for quality assurance and validation of the data and are found on pages 184-185 of the Surface Water QAPP (IDEM 2017a).

B. Data Usability

The environmental data collected and its usability will be qualified per each lab or field result obtained and classified into one or more of the four categories: Acceptable Data, Enforcement Capable Results, Estimated Data, and Rejected Data as described on page 184 of the Surface Water QAPP (IDEM 2017a).

C. Information, Data, and Reports

Data collected in 2019-2020 will be recorded in the AIMS II database and presented in two compilation summaries. The first summary will be a general compilation of the watershed field and water chemistry data prepared for use in the 2022 Indiana Integrated Report. The second summary will be in database report format containing biological results and habitat evaluations, which will be produced for inclusion in the Integrated Report as well as individual site folders. All site folders are maintained at the WAPB facility. All data and reports will be made available to public and private entities, which may find the data useful for municipal, industrial, agricultural, and recreational decision making processes (TMDL, NPDES permit modeling, watershed restoration projects, water quality criteria refinement, etc.,). This work plan will be uploaded into the virtual file cabinet, all field sheets will be stored in the AIMS II database, and results will be uploaded to U.S. EPA's Water Quality Portal via the Water Quality Exchange (formerly Storet), allowing the data to be shared with U.S. EPA and others. The Water Quality Exchange is a framework that allows states, tribes, and other data partners to submit and share water quality monitoring data via the web to the Water Quality Portal.

D. Laboratory and Estimated Cost

Laboratory analysis and data reporting for this project will comply with the Surface Water QAPP (IDEM 2017a); Request for Proposals 16-074 (see IDEM 2016); the IDEM QMP (IDEM 2018d); and TestAmerica contract SCM # 19855. Analytical tests on general chemistry and nutrient parameters outlined in Table 5 will be performed by TestAmerica Laboratories in University Park, Illinois with a total estimated cost of $28,500. IDEXX Laboratories, Inc., Westbrook, Maine supplies the bacteriological sampling supplies, with a total estimated cost of $1,400. Bacteriological samples will be tested and analyzed by IDEM staff. All fish and macroinvertebrate samples will be collected and analyzed by IDEM staff. Ten percent of macroinvertebrate samples will be verified by Rhithron Associates, Inc. in Missoula, Montana with a total estimated cost of $440. The anticipated budget for laboratory cost for the project is $30,340.

E. Reference Manuals and Personnel Safety

Table 7. Personnel Safety and Reference Manuals

Role	Required Training or Experience	Training References	Training Notes
All Staff that Participate in Field Activities	- Basic First Aid and Cardio-Pulmonary Resuscitation (CPR) - Personal Protective Equipment (PPE) Policy - Personal Flotation Devices	- A minimum of 4 hours of in-service training provided by WAPB (IDEM 2010c) - IDEM 2008 - February 29, 2000 WAPB internal memorandum regarding use of approved Personal Flotation Devices	-Staff lacking 4 hours of in-service training or appropriate certification will be accompanied in the field at all times by WAPB staff meeting Health and Safety Training requirements - 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.

REFERENCES

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

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.

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 Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA/841/B-99/002. U.S. EPA, Office of Water, Washington, D.C.

Indiana Administrative Code, Title 327 Water Pollution Control Division, Article 2. Water Quality Standards

IDEM 1992a, revision 1. Section 3, Quality Assurance Project Plan, Development of Biological Criteria (Fish) for the Ecoregions of Indiana. Biological Studies Section, Surveillance and Standards Branch, Office of Water Management, IDEM, Indianapolis, Indiana.*

IDEM 1992b, revision 1. Section 2, Biological Studies Section Hazards Communications Manual (List of Contents). Biological Studies Section, Surveillance and Standards Branch, OWQ, IDEM, Indianapolis, Indiana.*

IDEM 1997. Water Quality Surveys Section Laboratory and Field Hazard Communication Plan Supplement. IDEM 032/02/018/1998, Revised October 1998. Assessment Branch, IDEM, Indianapolis, Indiana.*

IDEM 2002. Water Quality Surveys Section Field Procedure Manual, Assessment Branch, IDEM, Indianapolis, Indiana. IDEM.

IDEM 2008. IDEM Personal Protective Equipment Policy, revised May 1 2008. A-059-OEA-08-P-R0. IDEM, Indianapolis, Indiana.

IDEM 2010a. IDEM Health and Safety Training Policy, revised October 1 2010. A-030-OEA-10-P-R2. IDEM, Indianapolis, Indiana.

IDEM 2010b. IDEM Injury and Illness Resulting from Occupational Exposure Policy, revised February 21, 2016. A-034-AW-16-P-R3. IDEM, Indianapolis, Indiana.

IDEM 2010c. Change in status of Water Assessment Branch staff in accordance with the Agency training policy. State Form 4336. IDEM, Indianapolis, Indiana.

REFERENCES (cont.)

IDEM 2015. Global Positioning System (GPS) Data Creation Technical Standard Operating Procedure. B-001-OWQ-WAP-XXX-15-T-R0. OWQ, Watershed Assessment and Planning Branch. Indianapolis, Indiana.

IDEM 2016. "State of Indiana Request for Proposals 16-74, Solicitation for: Laboratory Analytical Services", Indiana Department of Administration, Indianapolis, IN, February 26, 2016.*

IDEM 2017a. Quality Assurance Project Plan (QAPP) for Indiana Surface Waters, (Rev. 4, Mar. 2017). B-001-OWQ-WAP-XX-17-Q-R4. OWQ, Watershed Assessment and Planning Branch. Indianapolis, Indiana.

IDEM 2017b. AIMS II Database User Guide. Watershed Assessment and Planning Branch. Office of Water Quality, Indiana Department of Environmental Management. Indianapolis, Indiana.*

IDEM 2018a. Appendix I: Indiana's Approved 2018 303(d) List of Impaired Waters (Revised). OWQ, Watershed Assessment and Planning Branch. Indianapolis, Indiana.

IDEM 2018b. Appendix G: IDEM's 2018 Consolidated Assessment and Listing Methodology. OWQ, Watershed Assessment and Planning Branch. Indianapolis, Indiana.

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ATTACHMENTS

Attachment 1: Modified Geometric Design Steps for Watershed Characterization Studies

Introduction

A relatively new design that has recently been implemented in Indiana is termed the Geometric Site Selection process. This design is employed within watersheds that correspond to the 12-14 digit HUC scale in order to fulfill multiple water quality management objectives, not just the conventional focus on status assessment. The design is employed at a spatial scale that is representative of the scale at which watershed management is generally being conducted.

Sites within the watershed are allocated based on a geometric progression of drainage areas starting with the area at the mouth of the main stem river or stream (pour point) and working "upwards" through the various tributaries to the primary headwaters. This approach allocates sampling sites in a semi-random fashion and according to the stratification of available stream and river sizes based on drainage area. The Geometric Site Selection process is then modified by adding a targeted selection of additional sampling sites that are used to focus on localized management issues such as point source discharges, habitat modifications, and other potential impacts within a watershed. These sites are then "snapped to bridges" to facilitate safe and easy access to the stream. This design also fosters data analysis that takes into consideration overlying natural and human caused influences within the streams of a watershed. The design has been particularly useful for watersheds that are targeted for TMDL development because missing, incomplete, or outdated assessments can be addressed prior to TMDL development.

Selection Process

In ArcGIS, download from NHD Plus site (http://www.horizon-systems.com/nhdplus/HSC-wthMS.php) the following files for Region 5 (and then again for Region 7) and zip them into the appropriate file structure.

File Description	File Name (.zip***)	Format
Region 05, Version 01_01, Catchment Grid	NHDPlus05V01_01_Catgrid	ESRI Grid
Region 05, Version 01_01, Catchment Shapefile	NHDPlus05V01_01_Catshape	Shapefile
Region 05, Version 01_02, Catchment Flowline Attributes	NHDPlus05V01_02_Cat_Flowline_Attr	DBF
Region 05, Version 01_02, Elevation Unit a	NHDPlus05V01_02_Elev_Unit_a	ESRI Grid
Region 05, Version 01_02, Elevation Unit b	NHDPlus05V01_02_Elev_Unit_b	ESRI Grid
Region 05, Version 01_02, Elevation Unit c	NHDPlus05V01_02_Elev_Unit_c	ESRI Grid
Region 05, Version 01_01, Flow Accumulation and Flow Direction Unit a	NHDPlus05V01_01_FAC_FDR_Unit_a	ESRI Grid
Region 05, Version 01_01, Flow Accumulation and Flow Direction Unit b	NHDPlus05V01_01_FAC_FDR_Unit_b	ESRI Grid
Region 05, Version 01_01, Flow Accumulation and Flow Direction Unit c	NHDPlus05V01_01_FAC_FDR_Unit_c	ESRI Grid
Region 05, Version 01_02, National Hydrography Dataset	NHDPlus05V01_03_NHD	Shapefile and DBF
Region 05, Version 01_01, Stream Gage Events	NHDPlus05V01_01_StreamGageEvent	Shapefile
Region 05, Version 01_01, QAQC Sinks Spreadsheet	NHDPlus05V01_01_QAQC_Sinks	Excel Spreadsheet

Create a new point shapefile (or geodatabase featureclass) named Geometric Design within ArcCatalog with the same projection as the unzipped layers above.

Within an ArcMap project, add the following:

- nhdflowline layer
- Geometric Design layer
- catchment shapefile
- the FlowlineAttributesFlow table

Add the following fields to the nhdflowline layer:

- LENGTHMi (type: double, precision: 9, scale 4)
- DrainMi (type: double, precision: 9, scale 4)
- MinElev (type: double, precision: 9, scale 4)
- MaxElev (type: double, precision: 9, scale 4)
- Gradient (type: double, precision: 9, scale 4)

Add the following field to the GeometricDesign layer (use the add field-batch tool):

- Geometric (type: double, precision: 5, scale 2)
- Lat (type: double, precision: 8, scale 5)
- Long (type: double, precision: 8, scale 5)
- COMID (type: long, precision: 9)

Join the nhdflowline layer with the FlowlineAttributesFlow table based on the COMID field.

Use the field calculator within the nhdflowline attribute table, with the appropriate metric to imperial conversion to populate the following fields:

- LENGTHMi (from LENGTHKM – kilometers to miles)
- DrainMia (from CumDrainage – square kilometers to square miles (sq mi))
- MinElev (from MinElevSmo – meters to feet)
- MaxElev (from MaxElevSmo – meters to feet)

- Gradient ((MaxElev-MinElev)/LENGTHMI).

Unjoin the FlowlineAttributesFlow table.

Label the “nhdflowline” layer based new “LengthMi” field – note: this field shows the cumulative drainage at the *end* of the line segment, which is rarely more than 2-3 miles in between nodes.

Calculate the geometric break points (i.e., for a 500 sq mi watershed: 500, 250, 125, 62.5, 31, 15, 7, 4, 2).

It is recommended to change the symbology (Symbology: Show Quantities: Classification (Manual)) of the actual flowline to reflect the drainage. This will help identify when and where sites need to be allocated.

Start a new editing session, with the GeometricDesign layer as your target layer.

Add a new point within this layer to the pour point for the watershed (500 sq mi in this case).

Travel upstream through the main stem and “find” the next place on the stream where the river drainage brackets 250 sq mi. Use the catchment shapefile layer to identify more precisely the drainage value if needed.

Populate the “Geometric” field within the GeometricDesign layer accordingly to the identified drainage level, then change the symbology (Symbology: Categories: Unique Values: Geometric field) of this layer to reflect the drainage levels.

Proceed through the watershed (either around the outer portions or start with largest values and work in), adding points accordingly to each geometric level. Change the symbology to find areas or levels that were missed. Note – the drainage level must be exact. Use the catchment shapefile to subtract drainage areas from larger drainage areas until the exact drainage level is reached. It is ok to “skip” a geometric level if it is not exactly reached. Sometimes there are large tributaries whose contribution to the main stem skips a drainage level.

Populate the COMID (manually), and Lat/Long (right click on field and select calculate geometry – lat = x-coordinates and long = y-coordinates) accordingly for reference within the GeometricDesign Layer.

Once sites are selected in this fashion, they will need to be snapped to a bridge or access point.

Additional sites should be placed at pour points of subwatersheds (12-digit HUCs) to meet TMDL document requirements.

Once the initial sites are selected, the following features are taken into account to move or add sites:

- Permitted facilities
- Urban areas
- Historical sampling sites
- Assessment Unit IDs (AUID)
- External stakeholder information
- Resources - maximum of 35 sites per project

After refining site selections, there may be additional sites added to ensure spatial representation of the project area.

Sites may be removed or changed after site reconnaissance if there are problems accessing the site or if sites are dry.

Notes regarding the NHD dataset:

All units are initially set to metric and need to be converted to imperial.

Within the nhdflowline layer, the GNIS_Name/ID refers to the whole river name and ID, while the COMID is a unique identifier for the particular segment.

There is *not* a value GNIS_Name/ID for every river, especially where primary streams and ditches are concerned.

Segments within the nhdflowline layer are based on linear miles between "nodes," which are broken up (typically) by tributary. Typically these lengths are less than 2-3 miles.

The cumulative drainage values in the NHD dataset have been compared against other and deemed "reasonable" (read – not statistically compared). Also note that the drainage is calculated through the model to be at the pour point of that segment.

The elevation values, however, are **not** reliable and require supervision. These values are calculated from the associated digital elevation model (DEM) and sometimes have null values for either the maximum or minimum elevation values. In addition, the length of the stream is not long enough (i.e. >1 mile) to calculate gradient. In either case, this associated value is helpful to identify contour changes against a USGS contour map. However, to note the calculated gradient from the NHD information has been observed to be within several tenths of mile compared to a manual calculation of gradient.

Important tables from NHD

- FlowlineAttributesFlow (found in: Region 05, Version 01_02, Catchment Flowline Attributes)
- Key fields: CumDrainag, Max ElevRaw, MinElevSmo,

Important Layers from NHD

- Region 05, Version 01_01, Catchment Shapefile
- Region 05, Version 01_02, National Hydrography Dataset

Attachment 2: 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/Contact 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
- Totebarge
- Longline
- Scanoe
- 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 3: IDEM OWQ Stream Sampling Field Data Sheet

IDEM

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 (cf/sec)	Flow Estimated?	Algae?	Aquatic Life?
										☐	☐	☐

Sample Taken?	Aliquots	Water Flow Type	Water Appearance	Canopy Closed %
☐ Yes ☐ No; Frozen	☐ 1 ☐ 2 ☐ 3 ☐ 4	☐ Riffle ☐ Dry ☐ Stagnant	☐ Clear ☐ Green ☐ Sheen	☐ 0-20% ☐ 60-80%
☐ No; Stream Dry ☐ No; Other	☐ 6 ☐ 8 ☐ 12 ☐ 24	☐ Pool ☐ Run ☐ Flood	☐ Murky ☐ Black ☐ Other	☐ 20-40% ☐ 80-100%
☐ No; Owner refused Access	☐ 48 ☐ 72 ☐ AS-Flow	☐ Glide ☐ Eddy ☐ Other	☐ Brown ☐ Gray (Septic/Sewage)	☐ 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	ChromiumVI(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 4: IDEM OWQ Fish Collection Data Sheet

IDEM
OWQ-WATERSHED ASSESSMENT AND PLANNING BRANCH

Event ID______________ Voucher jars_______ Unknown jars________ Equipment________________ Page _____ of ______
Voltage_______ Time fished (sec)________ Distance fished (m)_________ Max. depth (m)_________ Avg. depth (m)________
Avg. width (m)______ Bridge in reach_____ Is reach representative_____ If no, why___________________________________
Elapsed time at site (hh:mm)____:____ Comments____
____
____

Museum data: Initials__________ ID date__________ Jar count__________ Fish Total__________

Coding for Anomalies: D – deformities E – eroded fins L – lesions T – tumor M – multiple DELT anomalies O – other (A – anchor worm C – leeches W – swirled scales Y – popeye S – emaciated F – fungus P – parasites) H – heavy L – light (these codes may be combined with above codes)

TOTAL # OF FISH				WEIGHT (s) (mass g)				(length mm)	ANOMALIES					
								Min length	D	E	L	T	M	O
								Max length						
V		P												
								Min length	D	E	L	T	M	O
								Max length						
V		P												
								Min length	D	E	L	T	M	O
								Max length						
V		P												
								Min length	D	E	L	T	M	O
								Max length						
V		P												
								Min length	D	E	L	T	M	O
								Max length						
V		P												
								Min length	D	E	L	T	M	O
								Max length						
V		P												

KRW: Rev/09.26.18 Calculation:________ QC1 + Entry________ QC 1 ________ QC 2________

Attachment 5: IDEM OWQ Macroinvertebrate Header Form

Office of Water Quality: Macroinvertebrate Header

L-Site	Stream Name	Location	County	Surveyor

Sample Date	Sample #	Macro#	# Containers

☐ Habitat Complete ☐ Sample Quality Rejected

Macro Sample Type:
☐ Black Light ☐ Kick
☐ CPOM ☐ MHAB
☐ Hester-Dendy ☐ Qualitative

☐ Normal ____________
☐ Duplicate ____________
☐ Replicate ____________

Riparian Zone/Instream Features

Macro Sub Sample (Field or Lab): ________________

Macro Reach Sampled (m): ______________________

Watershed Erosion:
☐ Heavy
☐ Moderate
☐ None

Watershed NPS Pollution:
☐ No Evidence
☐ Obvious Sources
☐ Some Potential Sources

Stream Depth Riffle (m):	Stream Depth Run (m):	Stream Depth Pool (m):

Distances Riffle-Riffle (m):	Distances Bend-Bend (m):

Stream Width (m):	High Water Mark (m):

Stream Type:
☐ Cold
☐ Warm

Turbidity (Est):
☐ Clear ☐ Slightly Turbid
☐ Opaque ☐ Turbid

☐ Channelization ☐ Dam Present

Predominant Surrounding Land Use: ☐ Forest ☐ Field/Pasture ☐ Agricultural ☐ Residential ☐ Commercial ☐ Industrial
Other ____________

Sediment

Sediment Odors: ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ Anaerobic ☐ None Other ____________

Sediment Deposits: ☐ Sludge ☐ Sawdust ☐ Paper Fiber ☐ Sand ☐ Relic Shells Other ____________

Sediment Oils: ☐ Absent ☐ Moderate ☐ Profuse ☐ Slight

☐ Are the undersides of stones, which are not deeply embedded, black?

Substrate Components

(Note: Select from 0%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 100% for each inorganic/ organic substrate component)

Inorganic Substrate Components (% Diameter)						
Bedrock	Boulder (>10 in)	Cobble (2.5-10 in)	Gravel (0.1-2.5 in)	Sand (gritty)	Silt	Clay (slick)

Organic Substrate Components (% Type)			
Detritus (sticks, wood)	Detritus (CPOM)	Muck/Mud (black, fine FPOM)	Marl(gray w/ shell fragments)

Water Quality

Water Odors: ☐ Normal ☐ Sewage ☐ Petroleum ☐ Chemical ☐ None Other ____________

Water Surface Oils: ☐ Slick ☐ Sheen ☐ Glob ☐ Flocks ☐ None

IDEM 03/8/18

Attachment 6: IDEM OWQ Biological Qualitative Habitat Evaluation Index (front)

IDEM

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 / PRESENT P/G R/R)
- ☐☐ BLDR/SLABS [10] ☐☐
- ☐☐ BOULDER [9] ☐☐
- ☐☐ COBBLE [8] ☐☐
- ☐☐ GRAVEL [7] ☐☐
- ☐☐ SAND [6] ☐☐
- ☐☐ BEDROCK [5] ☐☐

OTHER TYPES (PREDOMINANT / PRESENT P/G R/R)
- ☐☐ HARDPAN [4] ☐☐
- ☐☐ DETRITUS [3] ☐☐
- ☐☐ MUCK [2] ☐☐
- ☐☐ SILT [2] ☐☐
- ☐☐ ARTIFICIAL [0] ☐☐

(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

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

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

FLOOD PLAIN QUALITY (L R)
- ☐☐ 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 6 (continued): IDEM OWQ Biological Qualitative Habitat Evaluation Index (back)

IDEM

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: Pool: ☐ > 100 ft^2 Depth: ☐ > 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 7: IDEM OWQ Chain of Custody Form

IDEM

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 8: 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: 2020 Maria Creek **Composite** ☐ **Grab** ☒

OWQ Sample Set	19BLW	IDEM Sample Nos.	AB
Crew Chief	Tim Beckman	Lab Sample Nos.	
Collection Date		Lab Delivery Date	

Anions and Physical Parameters			
Parameter	Test Method	Total	Dissolved
Alkalinity	SM2320B	☒ **	☐
Total Solids	SM2540B	☒ **	
Suspended Solids	SM2540D	☒ **	
Dissolved Solids	SM2540C		☒ **
Sulfate	300.0	☐ **	☒ **
Chloride	300.0	☐ **	☒ **
Hardness (Calculated)	SM-2340B	☒ **	☐
Fluoride	300.0	☐ **	☐

Priority Pollutant Metals Water Parameters			
Parameter	Test Method	Total	Dissolved
Antimony	200.8	☐	☐
Arsenic	200.8	☐	☐
Beryllium	200.8	☐	☐
Cadmium	200.8	☐	☐
Chromium	200.7	☐	☐
Copper	200.8	☐	☐
Lead	200.8	☐	☐
Mercury, Low Level	1631, Rev E.	☐	☐
Nickel	200.8	☐	☐
Selenium	200.8	☐	☐
Silver	200.8	☐	☐
Thallium	200.8	☐	☐
Zinc	200.7	☐	☐

Cations and Secondary Metals Parameters			
Parameter	Test Method	Total	Dissolved
Aluminum	**200.7**, 200.8	☐	☐
Barium	200.8	☐	☐
Boron	200.8	☐	☐
Calcium	**200.7**, 200.8	☒ ***	☐
Cobalt	200.8	☐	☐
Iron	200.7	☐	☐
Magnesium	**200.7**, 200.8	☒ ***	☐
Manganese	200.8	☐	☐
Sodium	200.7	☐	☐
Silica, Total Reactive	200.7	☐	☐
Strontium	200.8	☐	☐

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	420.2	☐
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)	☒	☐
Nitrate + Nitrite	SM4500NO3-F	☒	☐
Total Phosphorus	SM4500P-E	☒	☐
TOC	SM 5310C	☒	☐
COD	SM5220C	☒	☐
Cyanide (Total)	SM4500CN-E	☐	☐
Cyanide (Free)	SM4500CN-I	☐ *	☐
Cyanide (Amenable)	SM4500CN-G	☐ *	☐
Sulfide, Total	SM4500S2-F	☐	☐

RFP 16-074 Contract Number:	SCM # 19855 PO # 0020000771

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 as Total Hardness components*

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

Testing Laboratory: Test America
Attn: Robin Kintz
Phone: 708.534.5200 2417 Bond Street
University Park, IL 60484

Attachment 9: Test America Chain of Custody Form

TestAmerica Chicago
2417 Bond Street

University Park, IL 60484-3101
phone 708.534.5200 fax 708.534.5211

Chain of Custody Record

TestAmerica — THE LEADER IN ENVIRONMENTAL TESTING

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

TestAmerica Laboratories, Inc.

Client Contact	**Project Manager:**	**Site Contact:**	**Date:**	COC No:
Your Company Name here	**Tel/Fax:**	**Lab Contact:**	**Carrier:**	_______ of _______ COCs
Address	**Analysis Turnaround Time**			Sampler:
City/State/Zip	☐ CALENDAR DAYS ☐ WORKING DAYS			**For Lab Use Only:**
(xxx) xxx-xxxx Phone	TAT if different from Below _________			Walk-in Client:
(xxx) xxx-xxxx FAX	☐ 2 weeks			Lab Sampling:
Project Name:	☐ 1 week			
Site:	☐ 2 days			Job / SDG No.:
P O #	☐ 1 day			

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y / N)	Perform MS / MSD (Y / N)																Sample Specific Notes:

Preservation Used: 1= Ice, 2= HCl; 3= H2SO4; 4=HNO3; 5=NaOH; 6= Other _____________

Possible Hazard Identification:
Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.

☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

☐ Return to Client ☐ Disposal by Lab ☐ Archive for_________ Months

Special Instructions/QC Requirements & Comments:

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temp. (°C): Obs'd:_________ Corr'd:__________ Therm ID No.:____________

Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received by:	Company:	Date/Time:
Relinquished by:	Company:	Date/Time:	Received in Laboratory by:	Company:	Date/Time:

Form No. CA-C-WI-002, Rev. 4.11, dated 1/24/2017

Attachment 10: Eurofins TestAmerica Chicago Laboratory Accreditation

STATE OF ILLINOIS

ENVIRONMENTAL PROTECTION AGENCY
NELAP - RECOGNIZED
ENVIRONMENTAL LABORATORY ACCREDITATION

is hereby granted to

Eurofins TestAmerica Chicago
2417 Bond Street
University Park, IL 60484

NELAP ACCREDITED

Accreditation Number #100201

According to the Illinois Administrative Code, Title 35, Subtitle A, Chapter II, Part 186, ACCREDITATION OF LABORATORIES FOR DRINKING WATER, WASTEWATER AND HAZARDOUS WASTES ANALYSIS, the State of Illinois formally recognizes that this laboratory is technically competent to perform the environmental analyses listed on the scope of accreditation detailed below.

The laboratory agrees to perform all analyses listed on this scope of accreditation according to the Part 186 requirements and acknowledges that continued accreditation is dependent on successful ongoing compliance with the applicable requirements of Part 186. Please contact the Illinois EPA Environmental Laboratory Accreditation Program (IL ELAP) to verify the laboratory's scope of accreditation and accreditation status. Accreditation by the State of Illinois is not an endorsement or a guarantee of validity of the data generated by the laboratory.

Primary Accrediting Authority:Illinois

Celeste M. Crowley
Supervisor
Environmental Laboratory Accreditation Program

Certificate No: 1002012019-2
Expiration Date: 4/30/2020
Issued On: 6/28/2019

Attachment 11: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

State of Illinois
Environmental Protection Agency

Certificate No.: 1002012019-2

Awards the Certificate of Approval to:

Eurofins TestAmerica Chicago
2417 Bond Street
University Park, IL 60484

Accreditation Start: 4/30/2018 Accreditation End: 4/30/2020

The Illinois Environmental Laboratory Accreditation Program encourages all clients and data users to verify the most current scope of accreditation for Eurofins TestAmerica Chicago.

	Primary AB
Field of Testing /Matrix: ***CWA (Non Potable Water)***	
Method **EPA 120.1**	
Conductivity	IL
Method **EPA 160.4**	
Residue-volatile	IL
Method **EPA 1664A Rev: 1**	
Oil & Grease	IL
Method **EPA 1664B**	
Oil & Grease	IL
Method **EPA 180.1 Rev: 2**	
Turbidity	IL
Method **EPA 200.7 Rev: 4.4**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silica as SiO2	IL
Silver	IL
Sodium	IL
Thallium	IL
Tin	IL
Titanium	IL
Vanadium	IL
Zinc	IL

Attachment 12: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***CWA (Non Potable Water)***	
Method **EPA 200.8 Rev: 5.4**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silver	IL
Sodium	IL
Thallium	IL
Tin	IL
Titanium	IL
Vanadium	IL
Zinc	IL
Method **EPA 218.6 Rev: 3.3**	
Chromium VI	IL
Method **EPA 245.1 Rev: 3**	
Mercury	IL
Method **EPA 300.0 Rev: 2.1**	
Bromide	IL
Chloride	IL
Fluoride	IL
Nitrate	IL
Nitrate plus Nitrite as N	IL
Nitrite	IL
Orthophosphate as P	IL
Sulfate	IL
Method **EPA 350.1 Rev: 2**	
Ammonia	IL
Method **EPA 353.2 Rev: 2**	
Nitrate	IL
Nitrate plus Nitrite as N	IL
Method **EPA 420.4 Rev: 1**	
Total phenolics	IL
Method **EPA 608**	
4,4'-DDD	IL

Attachment 13: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***CWA (Non Potable Water)***	
4,4'-DDE	IL
4,4'-DDT	IL
Aldrin	IL
alpha-BHC (alpha-Hexachlorocyclohexane)	IL
Aroclor-1016 (PCB-1016)	IL
Aroclor-1221 (PCB-1221)	IL
Aroclor-1232 (PCB-1232)	IL
Aroclor-1242 (PCB-1242)	IL
Aroclor-1248 (PCB-1248)	IL
Aroclor-1254 (PCB-1254)	IL
Aroclor-1260 (PCB-1260)	IL
beta-BHC (beta-Hexachlorocyclohexane)	IL
Chlordane (tech.)(N.O.S.)	IL
delta-BHC	IL
Dieldrin	IL
Endosulfan I	IL
Endosulfan II	IL
Endosulfan sulfate	IL
Endrin	IL
Endrin aldehyde	IL
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	IL
Heptachlor	IL
Heptachlor epoxide	IL
Methoxychlor	IL
Toxaphene (Chlorinated camphene)	IL
Method **EPA 624**	
1,1,1-Trichloroethane	IL
1,1,2,2-Tetrachloroethane	IL
1,1,2-Trichloroethane	IL
1,1-Dichloroethane	IL
1,1-Dichloroethylene	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,2-Dichloroethane (Ethylene dichloride)	IL
1,2-Dichloropropane	IL
1,3-Dichlorobenzene	IL
1,4-Dichlorobenzene	IL
2-Chloroethyl vinyl ether	IL
Acrolein (Propenal)	IL
Acrylonitrile	IL
Benzene	IL
Bromodichloromethane	IL
Bromoform	IL
Carbon tetrachloride	IL
Chlorobenzene	IL
Chlorodibromomethane	IL
Chloroethane (Ethyl chloride)	IL
Chloroform	IL
cis-1,3-Dichloropropene	IL
Ethylbenzene	IL
Methyl bromide (Bromomethane)	IL
Methyl chloride (Chloromethane)	IL

Attachment 14: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***CWA (Non Potable Water)***	
Methyl tert-butyl ether (MTBE)	IL
Methylene chloride (Dichloromethane)	IL
Tetrachloroethylene (Perchloroethylene)	IL
Toluene	IL
trans-1,2-Dichloroethylene	IL
trans-1,3-Dichloropropylene	IL
Trichloroethene (Trichloroethylene)	IL
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	IL
Vinyl chloride	IL
Xylene (total)	IL
Method **EPA 625**	
1,2,4-Trichlorobenzene	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,3-Dichlorobenzene	IL
1,4-Dichlorobenzene	IL
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether	IL
2,4,5-Trichlorophenol	IL
2,4,6-Trichlorophenol	IL
2,4-Dichlorophenol	IL
2,4-Dimethylphenol	IL
2,4-Dinitrophenol	IL
2,4-Dinitrotoluene (2,4-DNT)	IL
2,6-Dinitrotoluene (2,6-DNT)	IL
2-Chloronaphthalene	IL
2-Chlorophenol	IL
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	IL
2-Nitrophenol	IL
3,3'-Dichlorobenzidine	IL
4-Bromophenyl phenyl ether	IL
4-Chloro-3-methylphenol	IL
4-Chlorophenyl phenylether	IL
4-Nitrophenol	IL
Acenaphthene	IL
Acenaphthylene	IL
Anthracene	IL
Benzidine	IL
Benzo(a)anthracene	IL
Benzo(a)pyrene	IL
Benzo(b)fluoranthene	IL
Benzo(g,h,i)perylene	IL
Benzo(k)fluoranthene	IL
bis(2-Chloroethoxy)methane	IL
bis(2-Chloroethyl) ether	IL
bis(2-Ethylhexyl) phthalate (DEHP)	IL
Butyl benzyl phthalate	IL
Chrysene	IL
Dibenz(a,h) anthracene	IL
Diethyl phthalate	IL
Dimethyl phthalate	IL
Di-n-butyl phthalate	IL
Di-n-octyl phthalate	IL

Attachment 15: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***CWA (Non Potable Water)***	
Fluoranthene	IL
Fluorene	IL
Hexachlorobenzene	IL
Hexachlorobutadiene	IL
Hexachlorocyclopentadiene	IL
Hexachloroethane	IL
Indeno(1,2,3-cd) pyrene	IL
Isophorone	IL
Naphthalene	IL
Nitrobenzene	IL
n-Nitrosodimethylamine	IL
n-Nitrosodi-n-propylamine	IL
n-Nitrosodiphenylamine	IL
Pentachlorophenol	IL
Phenanthrene	IL
Phenol	IL
Pyrene	IL
Method **SM 2320 B-1997**	
Alkalinity as CaCO3	IL
Method **SM 2340 B-1997**	
Hardness	IL
Method **SM 2510 B-1997**	
Conductivity	IL
Method **SM 2540 B-1991 Rev: 18th ED**	
Residue-total	IL
Method **SM 2540 C-1997**	
Residue-filterable (TDS)	IL
Method **SM 2540 D-1997**	
Residue-nonfilterable (TSS)	IL
Method **SM 2540 E-1997**	
Residue-volatile	IL
Method **SM 2540 F-1997**	
Residue-settleable	IL
Method **SM 3500-Cr B-2009**	
Chromium VI	IL
Method **SM 4500-Cl F-2000**	
Total residual chlorine	IL
Method **SM 4500-Cl G-2000**	
Total residual chlorine	IL
Method **SM 4500-Cl⁻ E-1997 Rev: 21st ED**	
Chloride	IL
Method **SM 4500-CN⁻ E-1999**	
Cyanide	IL
Method **SM 4500-CN⁻ G-1999**	
Available Cyanide	IL
Method **SM 4500-F⁻ C-1997 Rev: 21st ED**	
Fluoride	IL

Attachment 16: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***CWA (Non Potable Water)***	
Method **SM 4500-H+ B-2000**	
pH	IL
Method **SM 4500-NH3 G Rev: 21st ED**	
Ammonia	IL
Total Kjeldahl Nitrogen (TKN)	IL
Method **SM 4500-NO2¯ B-2000**	
Nitrite	IL
Method **SM 4500-NO3¯ F-2000**	
Nitrate	IL
Nitrate plus Nitrite as N	IL
Method **SM 4500-O G-2001**	
Oxygen, dissolved	IL
Method **SM 4500-P E-1999**	
Orthophosphate as P	IL
Phosphorus	IL
Method **SM 4500-S2¯ F-2000**	
Sulfide	IL
Method **SM 4500-SO4¯ E-1997**	
Sulfate	IL
Method **SM 5210 B-2001**	
Biochemical oxygen demand	IL
Carbonaceous BOD, CBOD	IL
Method **SM 5220 C-1997 Rev: 21st ED**	
Chemical oxygen demand	IL
Method **SM 5310 B-2000**	
Total organic carbon	IL
Method **SM 5310 C-2000**	
Total organic carbon	IL

Attachment 17: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***CWA (Solid & Hazardous Material)***	
Method **EPA 120.1**	
Conductivity	IL
Method **EPA 160.4**	
Residue-volatile	IL
Method **EPA 1664A Rev: 1**	
Oil & Grease	IL
Method **EPA 1664B**	
Oil & Grease	IL
Method **EPA 200.7 Rev: 4.4**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silica as SiO2	IL
Silver	IL
Sodium	IL
Thallium	IL
Tin	IL
Titanium	IL
Vanadium	IL
Zinc	IL
Method **EPA 350.1 Rev: 2**	
Ammonia	IL
Method **EPA 353.2 Rev: 2**	
Nitrate	IL
Nitrate plus Nitrite as N	IL
Method **EPA 420.4 Rev: 1**	
Total phenolics	IL
Method **SM 2320 B-1997**	
Alkalinity as CaCO3	IL
Method **SM 2510 B-1997**	
Conductivity	IL
Method **SM 4500-Cl⁻ E-1997 Rev: 21st ED**	

Attachment 18: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***CWA (Solid & Hazardous Material)***	
Chloride	IL
Method **SM 4500-CN¯ E-1999**	
Cyanide	IL
Method **SM 4500-CN¯ G-1999**	
Available Cyanide	IL
Method **SM 4500-F¯ C-1997 Rev: 21st ED**	
Fluoride	IL
Method **SM 4500-NH3 G Rev: 21st ED**	
Ammonia	IL
Total Kjeldahl Nitrogen (TKN)	IL
Method **SM 4500-NO2¯ B-2000**	
Nitrite	IL
Method **SM 4500-NO3¯ F-2000**	
Nitrate	IL
Nitrate plus Nitrite as N	IL
Method **SM 4500-P E-1999**	
Orthophosphate as P	IL
Phosphorus	IL
Method **SM 4500-S2¯ F-2000**	
Sulfide	IL
Method **SM 5210 B-2001**	
Biochemical oxygen demand	IL
Carbonaceous BOD, CBOD	IL
Method **SM 5220 C-1997 Rev: 21st ED**	
Chemical oxygen demand	IL
Method **SM 5310 C-2000**	
Total organic carbon	IL

Attachment 19: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
Method **EPA 1010A**	
Ignitability	IL
Method **EPA 1311 Rev: 0**	
Toxicity Characteristic Leaching Procedure (TCLP)	IL
Method **EPA 1312 Rev: 0**	
Synthetic Precipitation Leaching Procedure (SCLP)	IL
Method **EPA 6010B Rev: 2**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL
Lithium	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silica as SiO2	IL
Silver	IL
Sodium	IL
Strontium	IL
Thallium	IL
Tin	IL
Titanium	IL
Vanadium	IL
Zinc	IL
Method **EPA 6010C**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL

Attachment 20: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
Lithium	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silica as SiO2	IL
Silver	IL
Sodium	IL
Strontium	IL
Thallium	IL
Tin	IL
Titanium	IL
Vanadium	IL
Zinc	IL
Method **EPA 6020A Rev: 1**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silver	IL
Sodium	IL
Thallium	IL
Vanadium	IL
Zinc	IL
Method **EPA 7196A Rev: 1**	
Chromium VI	IL
Method **EPA 7199 Rev: 0**	
Chromium VI	IL
Method **EPA 7470A Rev: 1**	
Mercury	IL
Method **EPA 8015B Rev: 2**	
Diesel range organics (DRO)	IL
Gasoline range organics (GRO)	IL

Attachment 21: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
Method **EPA 8015C**	
Diesel range organics (DRO)	IL
Gasoline range organics (GRO)	IL
Method **EPA 8015D**	
Diesel range organics (DRO)	IL
Gasoline range organics (GRO)	IL
Method **EPA 8081A Rev: 1**	
4,4'-DDD	IL
4,4'-DDE	IL
4,4'-DDT	IL
Alachlor	IL
Aldrin	IL
alpha-BHC (alpha-Hexachlorocyclohexane)	IL
alpha-Chlordane, cis-Chlordane	IL
Atrazine	IL
beta-BHC (beta-Hexachlorocyclohexane)	IL
Chlordane (tech.)(N.O.S.)	IL
delta-BHC	IL
Dieldrin	IL
Endosulfan I	IL
Endosulfan II	IL
Endosulfan sulfate	IL
Endrin	IL
Endrin aldehyde	IL
Endrin ketone	IL
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	IL
gamma-Chlordane	IL
Heptachlor	IL
Heptachlor epoxide	IL
Isodrin	IL
Kepone	IL
Methoxychlor	IL
Simazine	IL
Toxaphene (Chlorinated camphene)	IL
Method **EPA 8081B**	
4,4'-DDD	IL
4,4'-DDE	IL
4,4'-DDT	IL
Alachlor	IL
Aldrin	IL
alpha-BHC (alpha-Hexachlorocyclohexane)	IL
alpha-Chlordane, cis-Chlordane	IL
Atrazine	IL
beta-BHC (beta-Hexachlorocyclohexane)	IL
Chlordane (tech.)(N.O.S.)	IL
delta-BHC	IL
Dieldrin	IL
Endosulfan I	IL
Endosulfan II	IL
Endosulfan sulfate	IL

Attachment 22: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
Endrin	IL
Endrin aldehyde	IL
Endrin ketone	IL
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	IL
gamma-Chlordane	IL
Heptachlor	IL
Heptachlor epoxide	IL
Isodrin	IL
Kepone	IL
Methoxychlor	IL
Simazine	IL
Toxaphene (Chlorinated camphene)	IL
Method **EPA 8082 Rev: 0**	
Aroclor-1016 (PCB-1016)	IL
Aroclor-1221 (PCB-1221)	IL
Aroclor-1232 (PCB-1232)	IL
Aroclor-1242 (PCB-1242)	IL
Aroclor-1248 (PCB-1248)	IL
Aroclor-1254 (PCB-1254)	IL
Aroclor-1260 (PCB-1260)	IL
Method **EPA 8082A**	
Aroclor-1016 (PCB-1016)	IL
Aroclor-1221 (PCB-1221)	IL
Aroclor-1232 (PCB-1232)	IL
Aroclor-1242 (PCB-1242)	IL
Aroclor-1248 (PCB-1248)	IL
Aroclor-1254 (PCB-1254)	IL
Aroclor-1260 (PCB-1260)	IL
Method **EPA 8151A**	
2,4,5-T	IL
2,4-D	IL
2,4-DB	IL
Dalapon	IL
Dicamba	IL
Dichloroprop (Dichlorprop)	IL
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	IL
Pentachlorophenol	IL
Picloram	IL
Silvex (2,4,5-TP)	IL
Method **EPA 8260B**	
1,1,1,2-Tetrachloroethane	IL
1,1,1-Trichloroethane	IL
1,1,2,2-Tetrachloroethane	IL
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	IL
1,1,2-Trichloroethane	IL
1,1-Dichloroethane	IL
1,1-Dichloroethylene	IL
1,1-Dichloropropene	IL
1,2,3-Trichlorobenzene	IL
1,2,3-Trichloropropane	IL

Attachment 23: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
1,2,4-Trichlorobenzene	IL
1,2,4-Trimethylbenzene	IL
1,2-Dibromo-3-chloropropane (DBCP)	IL
1,2-Dibromoethane (EDB, Ethylene dibromide)	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,2-Dichloroethane (Ethylene dichloride)	IL
1,2-Dichloropropane	IL
1,3,5-Trichlorobenzene	IL
1,3,5-Trimethylbenzene	IL
1,3-Dichlorobenzene	IL
1,3-Dichloropropane	IL
1,4-Dichlorobenzene	IL
1,4-Dioxane (1,4- Diethyleneoxide)	IL
1-Chlorohexane	IL
2,2-Dichloropropane	IL
2-Butanone (Methyl ethyl ketone, MEK)	IL
2-Chloroethyl vinyl ether	IL
2-Chlorotoluene	IL
2-Hexanone	IL
2-Methylnaphthalene	IL
2-Nitropropane	IL
4-Chlorotoluene	IL
4-Isopropyltoluene (p-Cymene,p-Isopropyltoluene)	IL
4-Methyl-2-pentanone (MIBK)	IL
Acetone	IL
Acetonitrile	IL
Acrolein (Propenal)	IL
Acrylonitrile	IL
Allyl chloride (3-Chloropropene)	IL
Benzene	IL
Benzyl chloride	IL
Bromobenzene	IL
Bromochloromethane	IL
Bromodichloromethane	IL
Bromoform	IL
Carbon disulfide	IL
Carbon tetrachloride	IL
Chlorobenzene	IL
Chlorodibromomethane	IL
Chloroethane (Ethyl chloride)	IL
Chloroform	IL
Chloroprene (2-Chloro-1,3-butadiene)	IL
cis-1,2-Dichloroethylene	IL
cis-1,3-Dichloropropene	IL
Dibromomethane (Methylene bromide)	IL
Dichlorodifluoromethane (Freon-12)	IL
Diethyl ether	IL
Di-isopropylether (DIPE) (Isopropyl Ether)	IL
Ethanol	IL
Ethyl acetate	IL
Ethyl methacrylate	IL

Attachment 24: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
Ethylbenzene	IL
Hexachlorobutadiene	IL
Iodomethane (Methyl iodide)	IL
Isobutyl alcohol (2-Methyl-1-propanol)	IL
Isopropylbenzene	IL
m+p-xylene	IL
Methacrylonitrile	IL
Methyl bromide (Bromomethane)	IL
Methyl chloride (Chloromethane)	IL
Methyl methacrylate	IL
Methyl tert-butyl ether (MTBE)	IL
Methylene chloride (Dichloromethane)	IL
m-Xylene	IL
Naphthalene	IL
n-Butyl alcohol (1-Butanol, n-Butanol)	IL
n-Butylbenzene	IL
n-Propylbenzene	IL
o-Xylene	IL
Pentachloroethane	IL
Propionitrile (Ethyl cyanide)	IL
p-Xylene	IL
sec-Butylbenzene	IL
Styrene	IL
tert-Butyl alcohol	IL
tert-Butylbenzene	IL
Tetrachloroethylene (Perchloroethylene)	IL
Tetrahydrofuran (THF)	IL
Toluene	IL
trans-1,2-Dichloroethylene	IL
trans-1,3-Dichloropropylene	IL
trans-1,4-Dichloro-2-butene	IL
Trichloroethene (Trichloroethylene)	IL
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	IL
Vinyl acetate	IL
Vinyl chloride	IL
Xylene (total)	IL
Method **EPA 8270C Rev: 3**	
1,2,4,5-Tetrachlorobenzene	IL
1,2,4-Trichlorobenzene	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,2-Diphenylhydrazine	IL
1,3,5-Trinitrobenzene (1,3,5-TNB)	IL
1,3-Dichlorobenzene	IL
1,3-Dinitrobenzene (1,3-DNB)	IL
1,4-Dichlorobenzene	IL
1,4-Dinitrobenzene	IL
1,4-Dioxane (1,4- Diethyleneoxide)	IL
1,4-Naphthoquinone	IL
1,4-Phenylenediamine	IL
1-Chloronaphthalene	IL
1-Methylnaphthalene	IL

Attachment 25: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
1-Naphthylamine	IL
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether	IL
2,3,4,6-Tetrachlorophenol	IL
2,4,5-Trichlorophenol	IL
2,4,6-Trichlorophenol	IL
2,4-Dichlorophenol	IL
2,4-Dimethylphenol	IL
2,4-Dinitrophenol	IL
2,4-Dinitrotoluene (2,4-DNT)	IL
2,6-Dichlorophenol	IL
2,6-Dinitrotoluene (2,6-DNT)	IL
2-Acetylaminofluorene	IL
2-Chloronaphthalene	IL
2-Chlorophenol	IL
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	IL
2-Methylaniline (o-Toluidine)	IL
2-Methylnaphthalene	IL
2-Methylphenol (o-Cresol)	IL
2-Naphthylamine	IL
2-Nitroaniline	IL
2-Nitrophenol	IL
2-Picoline (2-Methylpyridine)	IL
3,3'-Dichlorobenzidine	IL
3,3'-Dimethylbenzidine	IL
3-Methylcholanthrene	IL
3-Methylphenol (m-Cresol)	IL
3-Nitroaniline	IL
4-Aminobiphenyl	IL
4-Bromophenyl phenyl ether	IL
4-Chloro-3-methylphenol	IL
4-Chloroaniline	IL
4-Chlorophenyl phenylether	IL
4-Dimethyl aminoazobenzene	IL
4-Methylphenol (p-Cresol)	IL
4-Nitroaniline	IL
4-Nitrophenol	IL
4-Nitroquinoline 1-oxide	IL
5-Nitro-o-toluidine	IL
7,12-Dimethylbenz(a) anthracene	IL
a-a-Dimethylphenethylamine	IL
Acenaphthene	IL
Acenaphthylene	IL
Acetophenone	IL
Aniline	IL
Anthracene	IL
Aramite	IL
Benzidine	IL
Benzo(a)anthracene	IL
Benzo(a)pyrene	IL
Benzo(b)fluoranthene	IL
Benzo(g,h,i)perylene	IL

Attachment 26: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

Field of Testing /Matrix: **RCRA (Non Potable Water)**	Primary AB
Benzo(k)fluoranthene	IL
Benzoic acid	IL
Benzyl alcohol	IL
bis(2-Chloroethoxy)methane	IL
bis(2-Chloroethyl) ether	IL
bis(2-Ethylhexyl) phthalate (DEHP)	IL
Butyl benzyl phthalate	IL
Carbazole	IL
Carbofuran (Furaden)	IL
Chlorobenzilate	IL
Chrysene	IL
Diallate	IL
Dibenz(a, j) acridine	IL
Dibenz(a,h) anthracene	IL
Dibenzofuran	IL
Diethyl phthalate	IL
Dimethoate	IL
Dimethyl phthalate	IL
Di-n-butyl phthalate	IL
Di-n-octyl phthalate	IL
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	IL
Diphenylamine	IL
Ethyl methanesulfonate	IL
Famphur	IL
Fluoranthene	IL
Fluorene	IL
Hexachlorobenzene	IL
Hexachlorobutadiene	IL
Hexachlorocyclopentadiene	IL
Hexachloroethane	IL
Hexachlorophene	IL
Hexachloropropene	IL
Indeno(1,2,3-cd) pyrene	IL
Isodrin	IL
Isophorone	IL
Isosafrole	IL
Kepone	IL
Methapyrilene	IL
Methyl methanesulfonate	IL
Methyl parathion (Parathion, methyl)	IL
Naphthalene	IL
Nitrobenzene	IL
n-Nitrosodiethylamine	IL
n-Nitrosodimethylamine	IL
n-Nitroso-di-n-butylamine	IL
n-Nitrosodi-n-propylamine	IL
n-Nitrosodiphenylamine	IL
n-Nitrosomethylethalamine	IL
n-Nitrosomorpholine	IL
n-Nitrosopiperidine	IL
n-Nitrosopyrrolidine	IL

Attachment 27: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
o,o,o-Triethyl phosphorothioate	IL
Parathion	IL
Pentachlorobenzene	IL
Pentachloronitrobenzene	IL
Pentachlorophenol	IL
Phenacetin	IL
Phenanthrene	IL
Phenol	IL
Phorate	IL
p-Phenylenediamine	IL
Pronamide (Kerb)	IL
Pyrene	IL
Pyridine	IL
Safrole	IL
Thionazin (Zinophos)	IL
Method **EPA 8270D**	
1,2,4,5-Tetrachlorobenzene	IL
1,2,4-Trichlorobenzene	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,2-Diphenylhydrazine	IL
1,3,5-Trinitrobenzene (1,3,5-TNB)	IL
1,3-Dichlorobenzene	IL
1,3-Dinitrobenzene (1,3-DNB)	IL
1,4-Dichlorobenzene	IL
1,4-Dinitrobenzene	IL
1,4-Dioxane (1,4- Diethyleneoxide)	IL
1,4-Naphthoquinone	IL
1,4-Phenylenediamine	IL
1-Chloronaphthalene	IL
1-Methylnaphthalene	IL
1-Naphthylamine	IL
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether	IL
2,3,4,6-Tetrachlorophenol	IL
2,4,5-Trichlorophenol	IL
2,4,6-Trichlorophenol	IL
2,4-Dichlorophenol	IL
2,4-Dimethylphenol	IL
2,4-Dinitrophenol	IL
2,4-Dinitrotoluene (2,4-DNT)	IL
2,6-Dichlorophenol	IL
2,6-Dinitrotoluene (2,6-DNT)	IL
2-Acetylaminofluorene	IL
2-Chloronaphthalene	IL
2-Chlorophenol	IL
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	IL
2-Methylaniline (o-Toluidine)	IL
2-Methylnaphthalene	IL
2-Methylphenol (o-Cresol)	IL
2-Naphthylamine	IL
2-Nitroaniline	IL
2-Nitrophenol	IL

Attachment 28: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

Field of Testing /Matrix: **_RCRA (Non Potable Water)_**	Primary AB
2-Picoline (2-Methylpyridine)	IL
3,3'-Dichlorobenzidine	IL
3,3'-Dimethylbenzidine	IL
3-Methylcholanthrene	IL
3-Methylphenol (m-Cresol)	IL
3-Nitroaniline	IL
4-Aminobiphenyl	IL
4-Bromophenyl phenyl ether	IL
4-Chloro-3-methylphenol	IL
4-Chloroaniline	IL
4-Chlorophenyl phenylether	IL
4-Dimethyl aminoazobenzene	IL
4-Methylphenol (p-Cresol)	IL
4-Nitroaniline	IL
4-Nitrophenol	IL
4-Nitroquinoline 1-oxide	IL
5-Nitro-o-toluidine	IL
7,12-Dimethylbenz(a) anthracene	IL
a-a-Dimethylphenethylamine	IL
Acenaphthene	IL
Acenaphthylene	IL
Acetophenone	IL
Aniline	IL
Anthracene	IL
Aramite	IL
Benzidine	IL
Benzo(a)anthracene	IL
Benzo(a)pyrene	IL
Benzo(b)fluoranthene	IL
Benzo(g,h,i)perylene	IL
Benzo(k)fluoranthene	IL
Benzoic acid	IL
Benzyl alcohol	IL
bis(2-Chloroethoxy)methane	IL
bis(2-Chloroethyl) ether	IL
bis(2-Ethylhexyl) phthalate (DEHP)	IL
Butyl benzyl phthalate	IL
Carbazole	IL
Carbofuran (Furaden)	IL
Chlorobenzilate	IL
Chrysene	IL
Diallate	IL
Dibenz(a, j) acridine	IL
Dibenz(a,h) anthracene	IL
Dibenzofuran	IL
Diethyl phthalate	IL
Dimethoate	IL
Dimethyl phthalate	IL
Di-n-butyl phthalate	IL
Di-n-octyl phthalate	IL
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	IL

Attachment 29: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
Diphenylamine	IL
Ethyl methanesulfonate	IL
Famphur	IL
Fluoranthene	IL
Fluorene	IL
Hexachlorobenzene	IL
Hexachlorobutadiene	IL
Hexachlorocyclopentadiene	IL
Hexachloroethane	IL
Hexachlorophene	IL
Hexachloropropene	IL
Indeno(1,2,3-cd) pyrene	IL
Isodrin	IL
Isophorone	IL
Isosafrole	IL
Kepone	IL
Methapyrilene	IL
Methyl methanesulfonate	IL
Methyl parathion (Parathion, methyl)	IL
Naphthalene	IL
Nitrobenzene	IL
n-Nitrosodiethylamine	IL
n-Nitrosodimethylamine	IL
n-Nitroso-di-n-butylamine	IL
n-Nitrosodi-n-propylamine	IL
n-Nitrosodiphenylamine	IL
n-Nitrosomethylethalamine	IL
n-Nitrosomorpholine	IL
n-Nitrosopiperidine	IL
n-Nitrosopyrrolidine	IL
o,o,o-Triethyl phosphorothioate	IL
Parathion	IL
Pentachlorobenzene	IL
Pentachloronitrobenzene	IL
Pentachlorophenol	IL
Phenacetin	IL
Phenanthrene	IL
Phenol	IL
Phorate	IL
p-Phenylenediamine	IL
Pronamide (Kerb)	IL
Pyrene	IL
Pyridine	IL
Safrole	IL
Thionazin (Zinophos)	IL
Method **EPA 9014 Rev: 0**	
Cyanide	IL
Method **EPA 9020B Rev: 2**	
Total organic halides (TOX)	IL
Method **EPA 9034 Rev: 0**	

Attachment 30: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Non Potable Water)***	
Sulfide	IL
Method **EPA 9038 Rev: 0**	
Sulfate	IL
Method **EPA 9040B Rev: 2**	
pH	IL
Method **EPA 9040C**	
pH	IL
Method **EPA 9050A Rev: 1**	
Conductivity	IL
Method **EPA 9056A**	
Bromide	IL
Chloride	IL
Fluoride	IL
Nitrate	IL
Nitrite	IL
Sulfate	IL
Total Phosphate	IL
Method **EPA 9060A**	
Total organic carbon	IL
Method **EPA 9066 Rev: 0**	
Total phenolics	IL
Method **EPA 9071B**	
Oil & Grease	IL
Method **EPA 9095A**	
Paint Filter Test	IL
Method **EPA 9095B**	
Paint Filter Test	IL
Method **EPA 9251 Rev: 0**	
Chloride	IL

Attachment 31: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
Method **EPA 1010A**	
Ignitability	IL
Method **EPA 1311 Rev: 0**	
Toxicity Characteristic Leaching Procedure (TCLP)	IL
Method **EPA 1312 Rev: 0**	
Synthetic Precipitation Leaching Procedure (SCLP)	IL
Method **EPA 6010B Rev: 2**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL
Lithium	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silica as SiO2	IL
Silver	IL
Sodium	IL
Strontium	IL
Thallium	IL
Tin	IL
Titanium	IL
Vanadium	IL
Zinc	IL
Method **EPA 6010C**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Boron	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Cobalt	IL
Copper	IL
Iron	IL
Lead	IL

Attachment 32: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
Lithium	IL
Magnesium	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Potassium	IL
Selenium	IL
Silica as SiO2	IL
Silver	IL
Sodium	IL
Strontium	IL
Thallium	IL
Tin	IL
Titanium	IL
Vanadium	IL
Zinc	IL
Method **EPA 7196A Rev: 1**	
Chromium VI	IL
Method **EPA 7471B**	
Mercury	IL
Method **EPA 8015B Rev: 2**	
Diesel range organics (DRO)	IL
Gasoline range organics (GRO)	IL
Method **EPA 8015C**	
Diesel range organics (DRO)	IL
Gasoline range organics (GRO)	IL
Method **EPA 8015D**	
Diesel range organics (DRO)	IL
Gasoline range organics (GRO)	IL
Method **EPA 8081A Rev: 1**	
4,4'-DDD	IL
4,4'-DDE	IL
4,4'-DDT	IL
Alachlor	IL
Aldrin	IL
alpha-BHC (alpha-Hexachlorocyclohexane)	IL
alpha-Chlordane, cis-Chlordane	IL
Atrazine	IL
beta-BHC (beta-Hexachlorocyclohexane)	IL
Chlordane (tech.)(N.O.S.)	IL
delta-BHC	IL
Dieldrin	IL
Endosulfan I	IL
Endosulfan II	IL
Endosulfan sulfate	IL
Endrin	IL
Endrin aldehyde	IL
Endrin ketone	IL
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	IL
gamma-Chlordane	IL

Attachment 33: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
Heptachlor	IL
Heptachlor epoxide	IL
Isodrin	IL
Kepone	IL
Methoxychlor	IL
Simazine	IL
Toxaphene (Chlorinated camphene)	IL
Method **EPA 8081B**	
4,4'-DDD	IL
4,4'-DDE	IL
4,4'-DDT	IL
Alachlor	IL
Aldrin	IL
alpha-BHC (alpha-Hexachlorocyclohexane)	IL
alpha-Chlordane, cis-Chlordane	IL
Atrazine	IL
beta-BHC (beta-Hexachlorocyclohexane)	IL
Chlordane (tech.)(N.O.S.)	IL
delta-BHC	IL
Dieldrin	IL
Endosulfan I	IL
Endosulfan II	IL
Endosulfan sulfate	IL
Endrin	IL
Endrin aldehyde	IL
Endrin ketone	IL
gamma-BHC (Lindane, gamma-HexachlorocyclohexanE)	IL
gamma-Chlordane	IL
Heptachlor	IL
Heptachlor epoxide	IL
Isodrin	IL
Kepone	IL
Methoxychlor	IL
Simazine	IL
Toxaphene (Chlorinated camphene)	IL
Method **EPA 8082 Rev: 0**	
Aroclor-1016 (PCB-1016)	IL
Aroclor-1221 (PCB-1221)	IL
Aroclor-1232 (PCB-1232)	IL
Aroclor-1242 (PCB-1242)	IL
Aroclor-1248 (PCB-1248)	IL
Aroclor-1254 (PCB-1254)	IL
Aroclor-1260 (PCB-1260)	IL
Method **EPA 8082A**	
Aroclor-1016 (PCB-1016)	IL
Aroclor-1221 (PCB-1221)	IL
Aroclor-1232 (PCB-1232)	IL
Aroclor-1242 (PCB-1242)	IL
Aroclor-1248 (PCB-1248)	IL
Aroclor-1254 (PCB-1254)	IL

Attachment 34: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
Aroclor-1260 (PCB-1260)	IL
Method **EPA 8151A**	
2,4,5-T	IL
2,4-D	IL
2,4-DB	IL
Dalapon	IL
Dicamba	IL
Dichloroprop (Dichlorprop)	IL
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	IL
Pentachlorophenol	IL
Picloram	IL
Silvex (2,4,5-TP)	IL
Method **EPA 8260B**	
1,1,1,2-Tetrachloroethane	IL
1,1,1-Trichloroethane	IL
1,1,2,2-Tetrachloroethane	IL
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	IL
1,1,2-Trichloroethane	IL
1,1-Dichloroethane	IL
1,1-Dichloroethylene	IL
1,1-Dichloropropene	IL
1,2,3-Trichlorobenzene	IL
1,2,3-Trichloropropane	IL
1,2,4-Trichlorobenzene	IL
1,2,4-Trimethylbenzene	IL
1,2-Dibromo-3-chloropropane (DBCP)	IL
1,2-Dibromoethane (EDB, Ethylene dibromide)	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,2-Dichloroethane (Ethylene dichloride)	IL
1,2-Dichloropropane	IL
1,3,5-Trichlorobenzene	IL
1,3,5-Trimethylbenzene	IL
1,3-Dichlorobenzene	IL
1,3-Dichloropropane	IL
1,4-Dichlorobenzene	IL
1,4-Dioxane (1,4- Diethyleneoxide)	IL
1-Chlorohexane	IL
2,2-Dichloropropane	IL
2-Butanone (Methyl ethyl ketone, MEK)	IL
2-Chloroethyl vinyl ether	IL
2-Chlorotoluene	IL
2-Hexanone	IL
2-Methylnaphthalene	IL
2-Nitropropane	IL
4-Chlorotoluene	IL
4-Isopropyltoluene (p-Cymene,p-Isopropyltoluene)	IL
4-Methyl-2-pentanone (MIBK)	IL
Acetone	IL
Acetonitrile	IL
Acrolein (Propenal)	IL
Acrylonitrile	IL

Attachment 35: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
Allyl chloride (3-Chloropropene)	IL
Benzene	IL
Benzyl chloride	IL
Bromobenzene	IL
Bromochloromethane	IL
Bromodichloromethane	IL
Bromoform	IL
Carbon disulfide	IL
Carbon tetrachloride	IL
Chlorobenzene	IL
Chlorodibromomethane	IL
Chloroethane (Ethyl chloride)	IL
Chloroform	IL
Chloroprene (2-Chloro-1,3-butadiene)	IL
cis-1,2-Dichloroethylene	IL
cis-1,3-Dichloropropene	IL
Dibromomethane (Methylene bromide)	IL
Dichlorodifluoromethane (Freon-12)	IL
Diethyl ether	IL
Di-isopropylether (DIPE) (Isopropyl Ether)	IL
Ethanol	IL
Ethyl acetate	IL
Ethyl methacrylate	IL
Ethylbenzene	IL
Hexachlorobutadiene	IL
Iodomethane (Methyl iodide)	IL
Isobutyl alcohol (2-Methyl-1-propanol)	IL
Isopropylbenzene	IL
m+p-xylene	IL
Methacrylonitrile	IL
Methyl bromide (Bromomethane)	IL
Methyl chloride (Chloromethane)	IL
Methyl methacrylate	IL
Methyl tert-butyl ether (MTBE)	IL
Methylene chloride (Dichloromethane)	IL
m-Xylene	IL
Naphthalene	IL
n-Butyl alcohol (1-Butanol, n-Butanol)	IL
n-Butylbenzene	IL
n-Propylbenzene	IL
o-Xylene	IL
Pentachloroethane	IL
Propionitrile (Ethyl cyanide)	IL
p-Xylene	IL
sec-Butylbenzene	IL
Styrene	IL
tert-Butyl alcohol	IL
tert-Butylbenzene	IL
Tetrachloroethylene (Perchloroethylene)	IL
Tetrahydrofuran (THF)	IL
Toluene	IL

Attachment 36: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
trans-1,2-Dichloroethylene	IL
trans-1,3-Dichloropropylene	IL
trans-1,4-Dichloro-2-butene	IL
Trichloroethene (Trichloroethylene)	IL
Trichlorofluoromethane (Fluorotrichloromethane, Freon 11)	IL
Vinyl acetate	IL
Vinyl chloride	IL
Xylene (total)	IL
Method **EPA 8270C Rev: 3**	
1,2,4,5-Tetrachlorobenzene	IL
1,2,4-Trichlorobenzene	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,2-Diphenylhydrazine	IL
1,3,5-Trinitrobenzene (1,3,5-TNB)	IL
1,3-Dichlorobenzene	IL
1,3-Dinitrobenzene (1,3-DNB)	IL
1,4-Dichlorobenzene	IL
1,4-Dinitrobenzene	IL
1,4-Dioxane (1,4- Diethyleneoxide)	IL
1,4-Naphthoquinone	IL
1,4-Phenylenediamine	IL
1-Chloronaphthalene	IL
1-Methylnaphthalene	IL
1-Naphthylamine	IL
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether	IL
2,3,4,6-Tetrachlorophenol	IL
2,4,5-Trichlorophenol	IL
2,4,6-Trichlorophenol	IL
2,4-Dichlorophenol	IL
2,4-Dimethylphenol	IL
2,4-Dinitrophenol	IL
2,4-Dinitrotoluene (2,4-DNT)	IL
2,6-Dichlorophenol	IL
2,6-Dinitrotoluene (2,6-DNT)	IL
2-Acetylaminofluorene	IL
2-Chloronaphthalene	IL
2-Chlorophenol	IL
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	IL
2-Methylaniline (o-Toluidine)	IL
2-Methylnaphthalene	IL
2-Methylphenol (o-Cresol)	IL
2-Naphthylamine	IL
2-Nitroaniline	IL
2-Nitrophenol	IL
2-Picoline (2-Methylpyridine)	IL
3,3'-Dichlorobenzidine	IL
3,3'-Dimethylbenzidine	IL
3-Methylcholanthrene	IL
3-Methylphenol (m-Cresol)	IL
3-Nitroaniline	IL
4-Aminobiphenyl	IL

Attachment 37: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
4-Bromophenyl phenyl ether	IL
4-Chloro-3-methylphenol	IL
4-Chloroaniline	IL
4-Chlorophenyl phenylether	IL
4-Dimethyl aminoazobenzene	IL
4-Methylphenol (p-Cresol)	IL
4-Nitroaniline	IL
4-Nitrophenol	IL
4-Nitroquinoline 1-oxide	IL
5-Nitro-o-toluidine	IL
7,12-Dimethylbenz(a) anthracene	IL
a-a-Dimethylphenethylamine	IL
Acenaphthene	IL
Acenaphthylene	IL
Acetophenone	IL
Aniline	IL
Anthracene	IL
Aramite	IL
Benzidine	IL
Benzo(a)anthracene	IL
Benzo(a)pyrene	IL
Benzo(b)fluoranthene	IL
Benzo(g,h,i)perylene	IL
Benzo(k)fluoranthene	IL
Benzoic acid	IL
Benzyl alcohol	IL
bis(2-Chloroethoxy)methane	IL
bis(2-Chloroethyl) ether	IL
bis(2-Ethylhexyl) phthalate (DEHP)	IL
Butyl benzyl phthalate	IL
Carbazole	IL
Carbofuran (Furaden)	IL
Chlorobenzilate	IL
Chrysene	IL
Diallate	IL
Dibenz(a, j) acridine	IL
Dibenz(a,h) anthracene	IL
Dibenzofuran	IL
Diethyl phthalate	IL
Dimethoate	IL
Dimethyl phthalate	IL
Di-n-butyl phthalate	IL
Di-n-octyl phthalate	IL
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	IL
Diphenylamine	IL
Ethyl methanesulfonate	IL
Famphur	IL
Fluoranthene	IL
Fluorene	IL
Hexachlorobenzene	IL
Hexachlorobutadiene	IL

Attachment 38: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
Hexachlorocyclopentadiene	IL
Hexachloroethane	IL
Hexachlorophene	IL
Hexachloropropene	IL
Indeno(1,2,3-cd) pyrene	IL
Isodrin	IL
Isophorone	IL
Isosafrole	IL
Kepone	IL
Methapyrilene	IL
Methyl methanesulfonate	IL
Methyl parathion (Parathion, methyl)	IL
Naphthalene	IL
Nitrobenzene	IL
n-Nitrosodiethylamine	IL
n-Nitrosodimethylamine	IL
n-Nitroso-di-n-butylamine	IL
n-Nitrosodi-n-propylamine	IL
n-Nitrosodiphenylamine	IL
n-Nitrosomethylethalamine	IL
n-Nitrosomorpholine	IL
n-Nitrosopiperidine	IL
n-Nitrosopyrrolidine	IL
o,o,o-Triethyl phosphorothioate	IL
Parathion	IL
Pentachlorobenzene	IL
Pentachloronitrobenzene	IL
Pentachlorophenol	IL
Phenacetin	IL
Phenanthrene	IL
Phenol	IL
Phorate	IL
p-Phenylenediamine	IL
Pronamide (Kerb)	IL
Pyrene	IL
Pyridine	IL
Safrole	IL
Thionazin (Zinophos)	IL
Method **EPA 8270D**	
1,2,4,5-Tetrachlorobenzene	IL
1,2,4-Trichlorobenzene	IL
1,2-Dichlorobenzene (o-Dichlorobenzene)	IL
1,2-Diphenylhydrazine	IL
1,3,5-Trinitrobenzene (1,3,5-TNB)	IL
1,3-Dichlorobenzene	IL
1,3-Dinitrobenzene (1,3-DNB)	IL
1,4-Dichlorobenzene	IL
1,4-Dinitrobenzene	IL
1,4-Dioxane (1,4- Diethyleneoxide)	IL
1,4-Naphthoquinone	IL
1,4-Phenylenediamine	IL

Attachment 39: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
1-Chloronaphthalene	IL
1-Methylnaphthalene	IL
1-Naphthylamine	IL
2,2'-Oxybis(1-chloropropane), bis(2-Chloro-1-methylethyl)ether	IL
2,3,4,6-Tetrachlorophenol	IL
2,4,5-Trichlorophenol	IL
2,4,6-Trichlorophenol	IL
2,4-Dichlorophenol	IL
2,4-Dimethylphenol	IL
2,4-Dinitrophenol	IL
2,4-Dinitrotoluene (2,4-DNT)	IL
2,6-Dichlorophenol	IL
2,6-Dinitrotoluene (2,6-DNT)	IL
2-Acetylaminofluorene	IL
2-Chloronaphthalene	IL
2-Chlorophenol	IL
2-Methyl-4,6-dinitrophenol (4,6-Dinitro-2-methylphenol)	IL
2-Methylaniline (o-Toluidine)	IL
2-Methylnaphthalene	IL
2-Methylphenol (o-Cresol)	IL
2-Naphthylamine	IL
2-Nitroaniline	IL
2-Nitrophenol	IL
2-Picoline (2-Methylpyridine)	IL
3,3'-Dichlorobenzidine	IL
3,3'-Dimethylbenzidine	IL
3-Methylcholanthrene	IL
3-Methylphenol (m-Cresol)	IL
3-Nitroaniline	IL
4-Aminobiphenyl	IL
4-Bromophenyl phenyl ether	IL
4-Chloro-3-methylphenol	IL
4-Chloroaniline	IL
4-Chlorophenyl phenylether	IL
4-Dimethyl aminoazobenzene	IL
4-Methylphenol (p-Cresol)	IL
4-Nitroaniline	IL
4-Nitrophenol	IL
4-Nitroquinoline 1-oxide	IL
5-Nitro-o-toluidine	IL
7,12-Dimethylbenz(a) anthracene	IL
a-a-Dimethylphenethylamine	IL
Acenaphthene	IL
Acenaphthylene	IL
Acetophenone	IL
Aniline	IL
Anthracene	IL
Aramite	IL
Benzidine	IL
Benzo(a)anthracene	IL
Benzo(a)pyrene	IL

Attachment 40: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
Benzo(b)fluoranthene	IL
Benzo(g,h,i)perylene	IL
Benzo(k)fluoranthene	IL
Benzoic acid	IL
Benzyl alcohol	IL
bis(2-Chloroethoxy)methane	IL
bis(2-Chloroethyl) ether	IL
bis(2-Ethylhexyl) phthalate (DEHP)	IL
Butyl benzyl phthalate	IL
Carbazole	IL
Carbofuran (Furaden)	IL
Chlorobenzilate	IL
Chrysene	IL
Diallate	IL
Dibenz(a, j) acridine	IL
Dibenz(a,h) anthracene	IL
Dibenzofuran	IL
Diethyl phthalate	IL
Dimethoate	IL
Dimethyl phthalate	IL
Di-n-butyl phthalate	IL
Di-n-octyl phthalate	IL
Dinoseb (2-sec-butyl-4,6-dinitrophenol, DNBP)	IL
Diphenylamine	IL
Ethyl methanesulfonate	IL
Famphur	IL
Fluoranthene	IL
Fluorene	IL
Hexachlorobenzene	IL
Hexachlorobutadiene	IL
Hexachlorocyclopentadiene	IL
Hexachloroethane	IL
Hexachlorophene	IL
Hexachloropropene	IL
Indeno(1,2,3-cd) pyrene	IL
Isodrin	IL
Isophorone	IL
Isosafrole	IL
Kepone	IL
Methapyrilene	IL
Methyl methanesulfonate	IL
Methyl parathion (Parathion, methyl)	IL
Naphthalene	IL
Nitrobenzene	IL
n-Nitrosodiethylamine	IL
n-Nitrosodimethylamine	IL
n-Nitroso-di-n-butylamine	IL
n-Nitrosodi-n-propylamine	IL
n-Nitrosodiphenylamine	IL
n-Nitrosomethylethalamine	IL
n-Nitrosomorpholine	IL

Attachment 41: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***RCRA (Solid & Hazardous Material)***	
n-Nitrosopiperidine	IL
n-Nitrosopyrrolidine	IL
o,o,o-Triethyl phosphorothioate	IL
Parathion	IL
Pentachlorobenzene	IL
Pentachloronitrobenzene	IL
Pentachlorophenol	IL
Phenacetin	IL
Phenanthrene	IL
Phenol	IL
Phorate	IL
p-Phenylenediamine	IL
Pronamide (Kerb)	IL
Pyrene	IL
Pyridine	IL
Safrole	IL
Thionazin (Zinophos)	IL
Method **EPA 9014 Rev: 0**	
Cyanide	IL
Method **EPA 9020B Rev: 2**	
Total organic halides (TOX)	IL
Method **EPA 9034 Rev: 0**	
Sulfide	IL
Method **EPA 9045C Rev: 3**	
pH	IL
Method **EPA 9045D**	
pH	IL
Method **EPA 9050A Rev: 1**	
Conductivity	IL
Method **EPA 9056A**	
Bromide	IL
Chloride	IL
Fluoride	IL
Nitrate	IL
Nitrite	IL
Sulfate	IL
Total Phosphate	IL
Method **EPA 9060A**	
Total organic carbon	IL
Method **EPA 9066 Rev: 0**	
Total phenolics	IL
Method **EPA 9071B**	
Oil & Grease	IL
Method **EPA 9095A**	
Paint Filter Test	IL
Method **EPA 9095B**	
Paint Filter Test	IL
Method **EPA 9251 Rev: 0**	

Attachment 42: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

		Primary AB
Field of Testing /Matrix:	***RCRA (Solid & Hazardous Material)***	
Chloride		IL

Attachment 43: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***SDWA (Potable Water)***	
Method **EPA 180.1**	
Turbidity	IL
Method **EPA 200.7 Rev: 4.4**	
Aluminum	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Cadmium	IL
Calcium	IL
Chromium	IL
Copper	IL
Iron	IL
Magnesium	IL
Manganese	IL
Nickel	IL
Silica as SiO2	IL
Silver	IL
Sodium	IL
Zinc	IL
Method **EPA 200.8 Rev: 5.4**	
Aluminum	IL
Antimony	IL
Arsenic	IL
Barium	IL
Beryllium	IL
Cadmium	IL
Chromium	IL
Copper	IL
Lead	IL
Manganese	IL
Molybdenum	IL
Nickel	IL
Selenium	IL
Silver	IL
Thallium	IL
Zinc	IL
Method **EPA 245.1 Rev: 3**	
Mercury	IL
Method **EPA 300.0 Rev: 2.1**	
Chloride	IL
Fluoride	IL
Nitrate	IL
Nitrite	IL
Orthophosphate as P	IL
Sulfate	IL
Method **EPA 353.2 Rev: 2**	
Nitrate	IL
Nitrate plus Nitrite as N	IL
Method **SM 2320 B-1997 Rev: 20th ED**	

Attachment 44: Eurofins TestAmerica Chicago Laboratory Accreditation (cont.)

	Primary AB
Field of Testing /Matrix: ***SDWA (Potable Water)***	
Alkalinity as CaCO3	IL
Method **SM 2340 B-1997 Rev: 20th ED**	
Hardness	IL
Method **SM 2510 B-1997 Rev: 20th ED**	
Conductivity	IL
Method **SM 2540 C-1997 Rev: 20th ED**	
Total dissolved solids	IL
Method **SM 4500-Cl F-1993 Rev: 20th ED**	
Chlorine	IL
Method **SM 4500-CN^- E-1997 Rev: 20th ED**	
Cyanide	IL
Method **SM 4500-F^- C-1997 Rev: 20th ED**	
Fluoride	IL
Method **SM 4500-H+ B-1996 Rev: 20th ED**	
pH	IL
Method **SM 4500-$NO2^-$ B-1993 Rev: 20th ED**	
Nitrite	IL
Method **SM 4500-$NO3^-$ F-1997 Rev: 20th ED**	
Nitrate	IL
Method **SM 4500-P E-1997 Rev: 20th ED**	
Orthophosphate as P	IL
Method **SM 4500-$SO4^-$ E-1997 Rev: 20th ED**	
Sulfate	IL
Method **SM 5310 B Rev: 21st ED**	
Total organic carbon	IL
Method **SM 5310 C Rev: 20th ED**	
Dissolved organic carbon (DOC)	IL
Total organic carbon	IL

End of Scope of Accreditation