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2020 Fixed Station Water Quality Monitoring Program Work Plan

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Signature Page

2020
Fixed Station Water Quality Monitoring Program Work Plan

Indiana Department of Environmental Management
Office of Water Quality
Watershed Assessment and Planning Branch
Indianapolis, Indiana

B-029-OWQ-WAP-TGM-20-W-R0

Reviews and Approvals

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IDEM quality assurance staff reviewed and approves this work plan.

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Quality Assurance Staff
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Work Plan Organization

This work plan is an extension of the existing 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. The United States Environmental Protection Agency (U.S. EPA) Guidance on Systematic Planning Using the Data Quality Objectives (DQO) Process (U.S. EPA 2006) was used to establish the criteria and specifications for this work plan pertaining to a specific water quality monitoring project. This work plan was developed using the Guidance for Quality Assurance Project Plans (U.S. EPA 2002) framework described in the following four QAPP groups and elements:

Group A. Project Management

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List of Acronyms

AIMS: Assessment Information Management System
ASTM: American Society for Testing and Materials
BOD: Biochemical oxygen demand
CALM: Consolidated Assessment and Listing Methodology
CFU: Colony Forming Units
CRQL: Contract Required Quantification Limit
CWA: Clean Water Act
DQA: Data Quality Assessment
DQO: Data Quality Objectives
DO: Dissolved Oxygen
DOC: Dissolved Organic Carbon
DRP: Dissolved Reactive Phosphorus
E. coli: Escherichia coli
IAC: Indiana Administrative Code
IDEM: Indiana Department of Environmental Management
ISDH: Indiana State Department of Health
MRL: Method reporting limit
µS/cm: Microsiemens per centimeter
mg/L: Milligram per liter
mL: Milliliter
MPN: Most probable number
MS/MSD: Matrix Spike or Matrix Spike Duplicate
NTU: Nephelometric Turbidity Unit(s)
OWQ: Office of Water Quality
QAPP: Quality assurance project plan
QC: Quality control
QA/QC: Quality assurance and quality control
RPD: Relative percent difference
SM: Standard Methods
SOP: Standard operating procedures
TMDL: Total maximum daily load
U.S. EPA: United States Environmental Protection Agency
WQMS: Water quality monitoring strategy

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A. Project Management

A.1. Project Objective

The Indiana Department of Environmental Management (IDEM) Office of Water Quality (OWQ) is responsible for sampling and assessing Indiana's surface waters pursuant to the Clean Water Act (CWA) Section 305(b), and Section 303(d). The state must identify those waters of the state which are impaired and need development of a total maximum daily load (TMDL) to alleviate the impairments. To that end, all states must submit a biennial Integrated Water Quality Monitoring and Assessment Report, encompassing the 303(d) list and the 305(b)-assessment report, to the U.S. EPA. The Indiana Water Quality Monitoring Strategy: 2017-2021 (WQMS) (IDEM 2017b) facilitates compliance with these CWA requirements, in addition to other IDEM goals. The WQMS details a rotating basin plan which allows IDEM to intensively sample all Indiana surface waters for assessment in a nine-year rotation. Assessments of the state's waters are facilitated by various Watershed Assessment and Planning Branch (WAPB) programs involving probabilistic and targeted approaches by collecting biological, chemical, habitat, and physical stream data. The Fixed Station Water Quality Monitoring Program is one component of the WQMS designed to broadly assess all waters of the state monthly at 165 targeted sites.

A.2. Project Organization and Schedule

The Indiana Fixed Station Water Quality Monitoring Program has these specific objectives:

- Determine chemical, physical, and bacteriological characteristics of Indiana water under changing conditions.
- Indicate, when possible, the sources of pollution entering a stream.
- Compile data for trend analyses and future pollution abatement activities.
- Determine background data on certain types of chemicals or wastes, such as chlorides and radioactive materials, and to detect critical changes.
- Obtain data useful for municipal, industrial, agricultural, and recreational decision-making processes. This includes the TMDL process and National Pollutant Discharge Elimination System (NPDES) permit modeling.
- Procure data useful and necessary for securing public action toward the preservation of streams for all beneficial uses.

In addition, this program will provide representative data for the statewide assessments of the water quality required by IDEM's WQMS. This data will provide benchmark information for long-term trend analyses on a broader

scale at the main stems and selected tributaries of the major rivers of the state. Also, an examination of these data relative to water quality standards will provide the identification of any immediately emerging problems.

A.3. Background and Project Description

The Fixed Station Water Quality Monitoring Program was created in 1957 by the Division of Sanitary Engineering, Indiana State Board of Health. Initially, 49 sites statewide were selected for the biweekly collection of surface water samples for physical, chemical, and bacteriological analyses for water quality monitoring. On April 2, 1986, IDEM was created and the Office of Water Management (OWM), now called the OWQ, assumed operation of this program. Various changes and improvements have been made since this program was first established and assumed by IDEM.

Currently, the Indiana Fixed Station Water Quality Monitoring Program is designed to gather monthly water quality data from 165 regular sampling locations statewide. Most of these sampling locations target major rivers, enabling water quality assessments to be made year after year which can show changes in the monitoring parameters and pollutants from upstream to downstream on the waterbodies.

Every year, as each sampling location is sampled and evaluated, some of the sampling locations may be dropped and other new sampling locations may be added depending on the perceived usefulness of the data. The basic goal of this program is achieved when quality assured data are supplied for wastewater treatment permitting decisions and completion of water quality assessments.

A.4. Data Quality Objectives (DQOs)

The DQO process (U.S. EPA 2006) is a planning tool for data collection activities. It provides a basis for balancing decision uncertainty with available resources. The DQO is required for all significant data collection efforts for a project and 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 process for the Fixed Station Water Quality Monitoring Program is identified in the following seven steps:

1. State the Problem

The objective of this program is to gather water quality data with respect to chemical, physical, and bacteriological characteristics of Indiana waters. The data is needed for spatial and temporal trend analyses over time and provides data for IDEM program needs including water quality assessments. In addition, the program provides data to a wide variety of public and private entities as detailed in A. Project Management.

2. Identify the Goals for the Study

The objective of this program is to fully assess whether the surface waters are supporting or nonsupporting for aquatic life use and recreational use, and the extent of impairment when they are nonsupporting. All sites will be sampled for concentrations of physical and chemical parameters, and evaluated as "supporting" or "nonsupporting" when compared with water quality criteria shown in Table 1 [327 IAC 2-1-6] and following the decision-making processes described in Indiana's most recent Consolidated Assessment Listing Methodology (CALM) found at: https://www.in.gov/idem/nps/2639.htm.

In addition to the physical, chemical, and bacteriological criteria listed in Table 1, data for several nutrient parameters will be evaluated with the benchmarks described below. 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, in the range 4.0-5.0 mg/L; or any DO percent saturation measurements greater than 120%.
- pH: any measurement greater than 9.0 Standard Units (S.U.); or measurements consistently at or close to the standard (in the range 8.7-9.0 S.U.)

Table 1. Water Quality Criteria (327 IAC 2-1-6)

Parameters	Water Quality Criteria	Criterion
Ammonia-Nitrogen	Calculated based on pH and temperature	Calculated CAC
Nitrate+Nitrite-Nitrogen	≤10 mg/L	Human health point of drinking water intake
Metals (dissolved)	Calculated based on hardness	Calculated CAC
Arsenic III (dissolved)	190 µg/L	Calculated CAC
Cyanide	Total = 200 µg/L	Human health point of drinking water intake
	Free = 5.2 µg/L (analyzed only if hit on Total)	Calculated CAC
Dissolved Oxygen	At least 5.0 mg/L (warm waters)	Daily average
	Not less than 4.0 mg/L at any time	Single reading

Parameters	Water Quality Criteria	Criterion
Dissolved oxygen	At least 6.0 mg/L (cold-water fish*)	Not less than 6.0 mg/L at any time and shall not be less than 7.0 mg/L in areas where spawning occurs
pH	6.0 – 9.0 S.U.	Must remain between 6.0 and 9.0 S.U. except for daily fluctuations which exceed 9.0 due to photosynthetic activity
Sulfate	Calculated based on hardness and chloride	In all waters outside the mixing zone
Chloride	Calculated based on hardness and sulfate	Calculated CAC
E. coli (April-October recreational season)	≤125 CFU/100mL or ≤125 MPN/100 mL	5 sample geometric mean based on at least 5 samples equally spaced over a 30-day period
	≤235 CFU/100 mL or ≤235 MPN/100 mL	Not to exceed in any one sample in a 30-day period except in cases where there are at least 10 samples, then 10% of the samples may exceed the criterion
Dissolved solids	750 mg/L	Public water supply

CAC = Chronic Aquatic Criterion, S.U. = Standard Units, MPN = Most Probable Number, CFU = Colony Forming Unit

*Waters protected for cold-water fish include those waters designated by the Indiana Department of Natural Resources for put-and-take trout fishing as well as salmonid waters listed in 327 IAC 2-1.5-5.

3. Identify Information Inputs

Water samples are collected and analyzed monthly from fixed station locations statewide. Specific parameters have been selected after consideration of potential sources of pollution, matrix, and intended data use. All chemical and physical parameters, and historical records obtained from this and any previous study will be used as inputs for the decision-making process.

4. Define the Boundaries of the Study

Each year, 165 sampling locations statewide are sampled monthly. See Figures 1 through 4 for geographic boundaries and specific sampling locations for this study.

5. Develop the Analytical Approach

For assessment purposes in the Indiana Integrated Water Monitoring and Assessment Report, 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. Evaluations will be based on Indiana's most recent CALM.

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.1.5.1of the Surface Water QAPP, 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 (IDEM 2017a).

Good quality data are essential for minimizing decision error. By identifying errors in the sampling design, measurement, and laboratory for physical and chemical parameters, more confidence can be placed in the conclusions drawn about 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 minimize the introduction of errors. These controls include water chemistry and bacteriological blanks; and duplicates, and laboratory controls as described in the Water Chemistry Field Sampling Procedures (IDEM 2020a).

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. Chemists within the WAPB review the laboratory analytical results for quality assurance. Any data which is "Rejected" due to analytical problems or errors will not be used for water quality assessment decisions. Any data flagged as "Estimated" may be used on a case-by-case basis 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 consistently "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.

7. Optimize the Plan for Obtaining Data

The optimum design for this project (program) is monthly sampling statewide from 165 fixed station locations, see Figures 1 through 4 and Tables 3, 4, and 5 for site and sample locations. A total of 165 sampling locations are chosen for this project. These sampling locations are divided into 16 sampling routes designed to reduce waste in terms of resources and time, see Tables 7-22. Three staff, as individual team members, will sample these routes monthly for water quality.

A.5. Training and Staffing Requirements

Table 2. Project Roles, Experience, and Training

Role	Required Training/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	- 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 multi-probe analyzers are calibrated weekly	- YSI 2017 - IDEM 1997, 2008, 2010a, 2010b, 2015, 2017a, 2019a, 2020a, 2020b - YSI 2018

Role	Required Training/Experience	Responsibilities	Training References
		prior to field sampling activities - Ensure field sampling equipment is functioning properly and loaded into field vehicles prior to field sampling activities	
Field crew staff	- 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, 2008, 2010a, 2010b, 2015, 2017a, 2019a, 2020a, 2020b - YSI 2018
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	- IDEM 2017a, 2017b - U.S. EPA 2006

Role	Required Training/Experience	Responsibilities	Training References
		- Ensure field sampling methodology audits are completed according to WAPB procedures	

B. Data Generation and Acquisition

B.1. Sampling Design and Site Locations

One hundred sixty-five Fixed Station Water Quality Monitoring Program sampling locations distributed across Indiana are shown in Figures 1 through 4. For sampling locations and site descriptions, see Table 3. Some sites in Table 3 have been redesignated over the years due to the recalculation of river miles, hence the additional site numbers (#s) at the same location. In the past, numerous other locations than those listed in Table 3, have been sampled under the Fixed Station Water Quality Monitoring Program.

Figure 1. Fixed Station Monitoring Program Sampling Locations-for inset see Figure 2

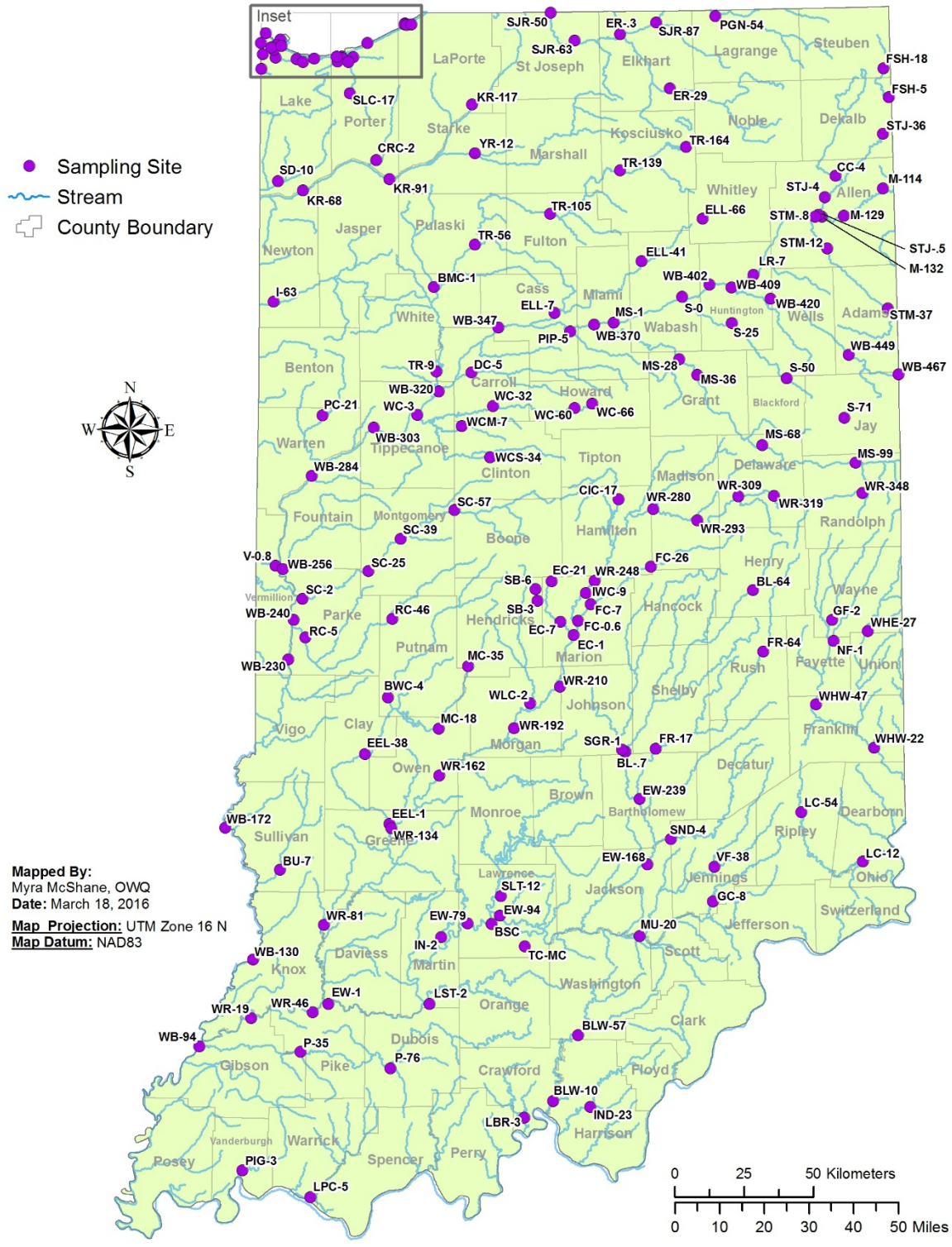


Figure 2. Northwest Indiana Fixed Station Monitoring Program Sampling Locations

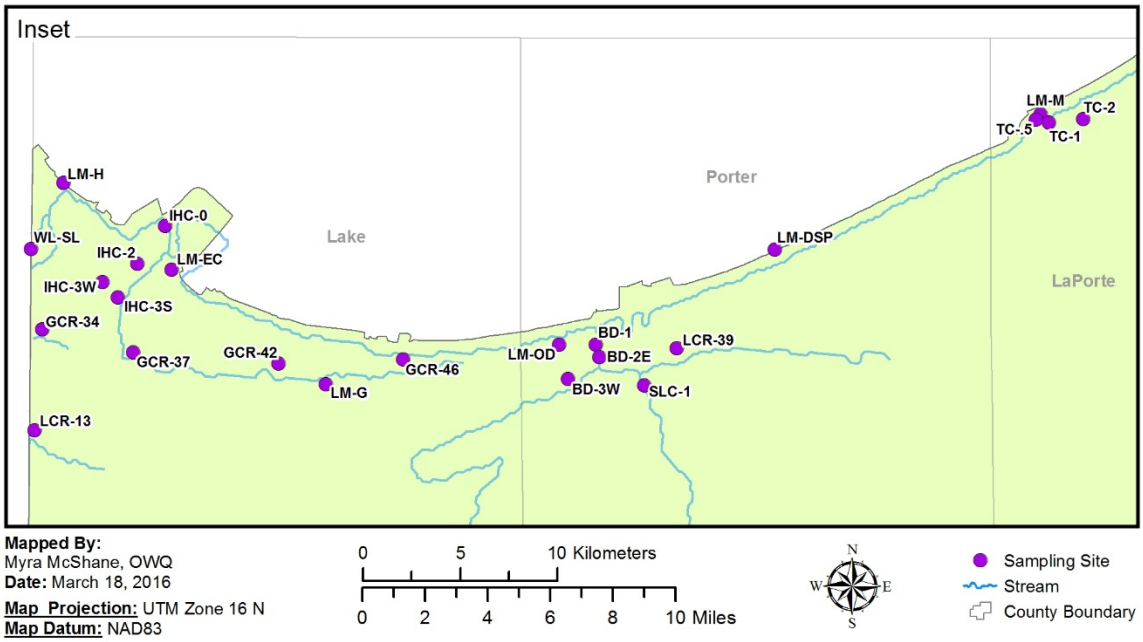


Figure 3. Dissolved Metals and Pesticides Monitoring Locations

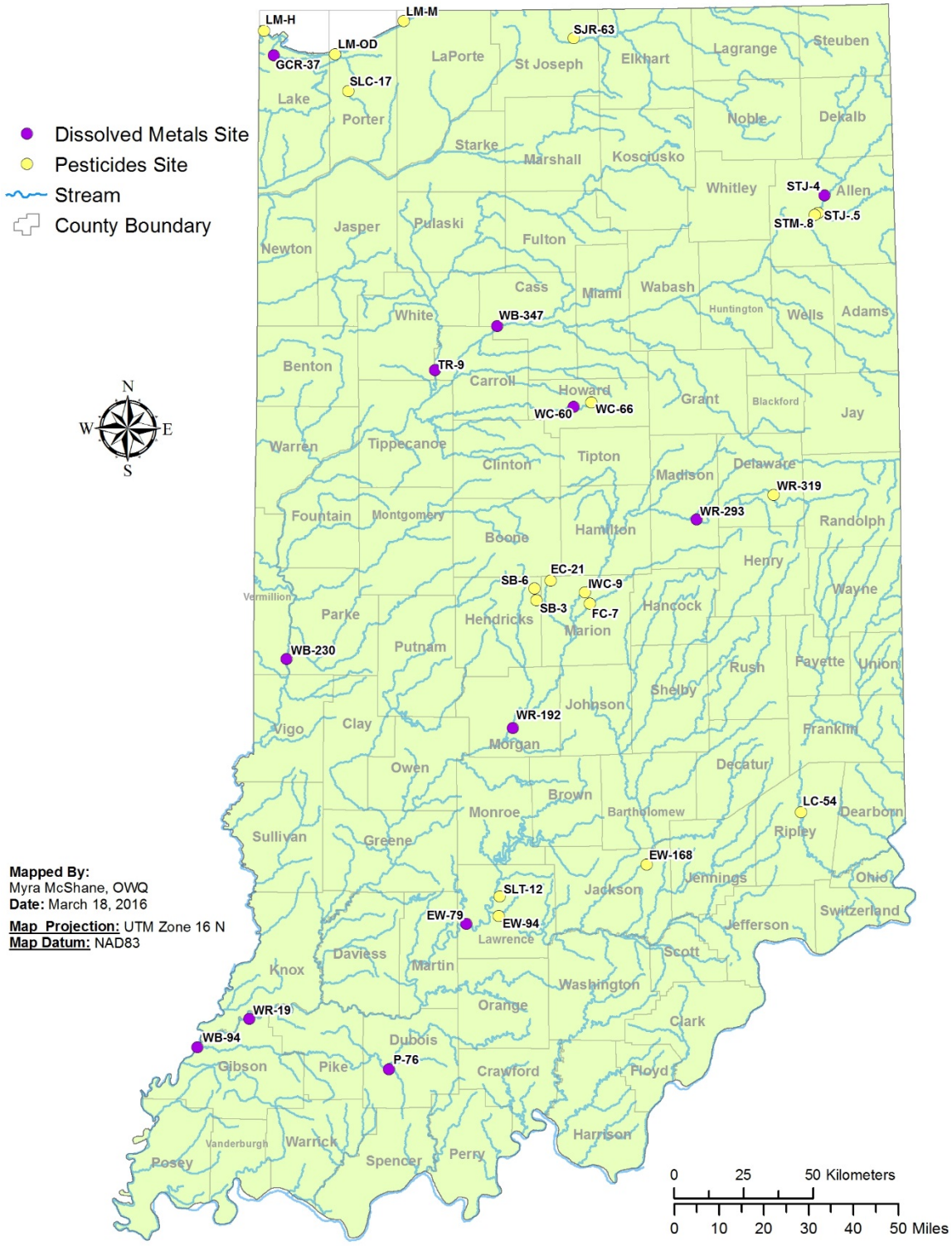
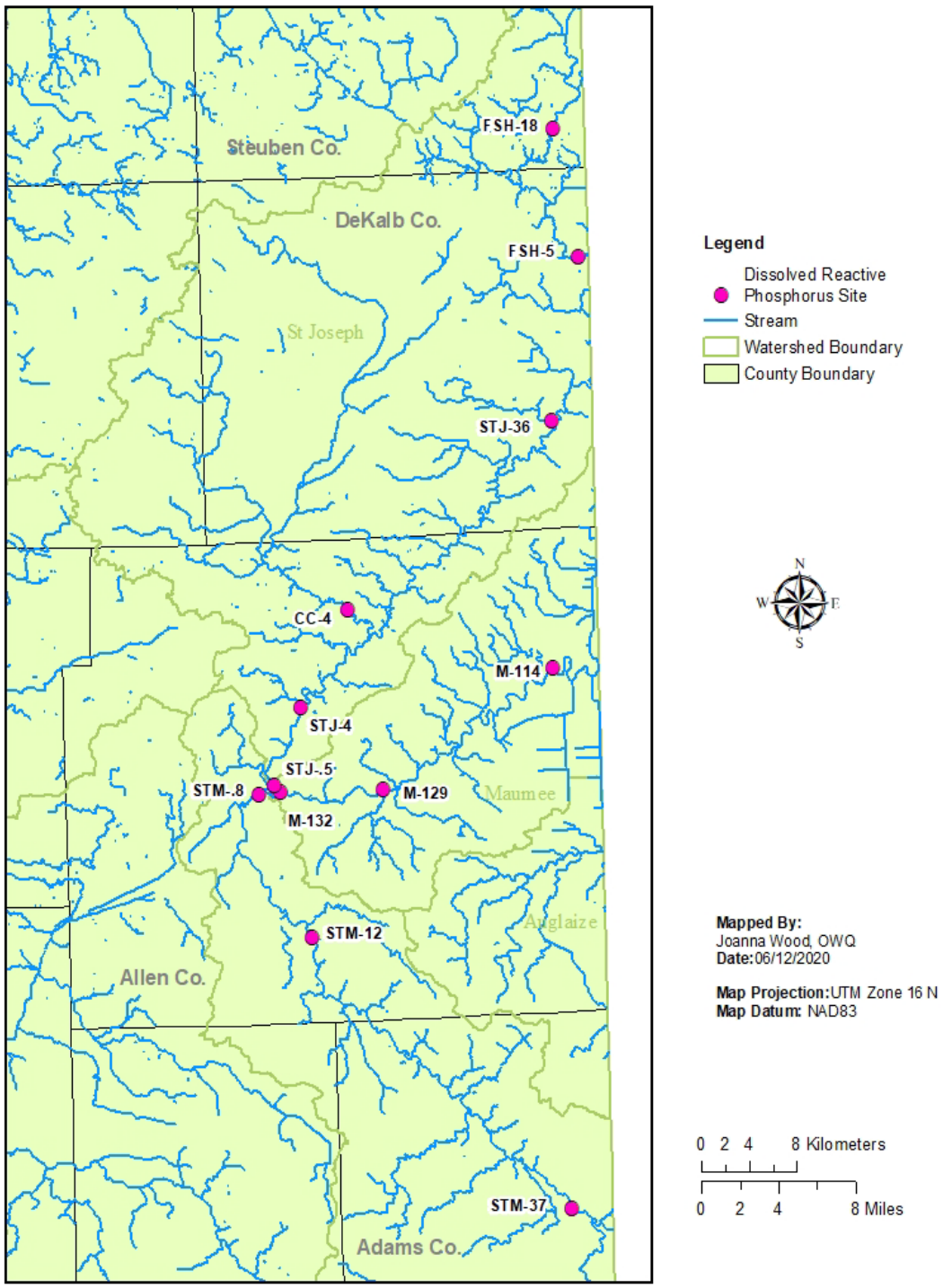


Figure 4. Dissolved Reactive Phosphorus Monitoring Locations



B.2. Sampling Methods

Water Chemistry Sampling

Staff will collect grab samples for water chemistry and record physical site observations on the field data sheet during monthly sampling events. All water

chemistry sampling will adhere to the Water Chemistry Field Sampling Procedures (IDEM 2020a).

Field Parameter Measurements

Dissolved oxygen, pH, water temperature, specific conductance, and DO percent saturation will be measured with a data sonde, during each sampling event. Measurement procedures and operation of the data sonde shall be performed according to the manufacturers' manuals (YSI 2017; YSI 2018) and the Calibration of YSI Multiparameter Data Sonde (IDEM 2020b). 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 data sonde measurement for turbidity will be recorded and noted in the comments. All field parameter measurements and weather codes will be recorded on the IDEM OWQ Stream Sampling Field Data Sheet.

Pesticides Sampling

Due to the completion and discontinuation of the Pesticides Monitoring Program in 2001 and the need to renew a capability of sampling to screen Fixed Station Water Quality Monitoring Program sites for currently and widely used pesticides, eighteen fixed station sites were chosen for monthly testing beginning in April 2002. Most of these sites are at or near drinking water source intakes. This is performed along with testing for the previously chosen parameters for each site. See Table 5 for the list of sites selected for this additional pesticide monitoring.

Dissolved Metals and Dissolved Organic Carbon Sampling

Twelve sites were selected for dissolved metals analysis in the Fixed Station Water Quality Monitoring Program beginning in 2011. Starting in 2019 DOC was added to these sites. Due to resource and time constraints, dissolved metals and DOC cannot be sampled at all fixed station sites, so a small subset of existing sites were chosen for this purpose. Sites were selected focusing on larger rivers and on good spatial coverage throughout the entire state. See Table 4 for a list of sites selected for dissolved metals and DOC sampling.

Dissolved Reactive Phosphorus Sampling

Dissolved reactive phosphorus sampling was added to all fixed station sites located in the Lake Erie Basin beginning in 2018. Currently there are twelve fixed station sites within this basin. See Table 6 for a list of sites selected for DRP sampling.

Analytical Methods

The field measurements of DO, temperature, pH, specific conductance, turbidity, and DO percent saturation are taken each time a sample is collected. The field parameters and their respective test methods and quantification limits are identified in Table 23.

All analysis, other than field parameters, will be performed at the Indiana State Department of Health (ISDH) environmental lab in accordance with preapproved test methods and allotted holding time frames (Tables 24-28). More information

on the competency of ISDH to perform the requested work may be found in the IDEM QAPP (IDEM 2017a). All parameters measured in the laboratory are listed in Tables 24-27. Tables 24-27 identify numerous parameters (semivolatile organics, inorganics, nutrients, general chemistry, and *E. coli* bacteriological parameters) and their respective test methods and reporting limits. A chain of custody form and a sample analysis request form accompany each sample set through the analytical process.

B.3. Quality Control and Custody Requirements

Field Parameter Measurements

The data sonde is calibrated on a routine basis (IDEM 2020b). The DO component of the calibration procedure is conducted using the air calibration method (IDEM 2020b, p. 5-7). Calibration results and drift values are recorded, maintained, stored, and archived in the calibration laboratories at the Shadeland facility. The drift value is the difference between two successive calibrations. Field parameter calibrations conform to the procedures as described in the instrument user manuals (YSI 2017; YSI 2018). The unit is field checked for accuracy once during each route or analysis set by comparison with a portable DO meter, Hach™ turbidity meter, pH meter, and temperature meter. Calibration verification is recorded on the field calibration portion of the field sheet. A portable DO meter test is also conducted in the field at sites where the field measurement of the DO concentration is 4.0 mg/L or less.

In-situ water chemistry field data are collected in the field using calibrated or standardized equipment. Calculations may be done in the field or later at the office. Analytical results, which have limited QC checks, are included in this category. Detection limits and ranges have been set for each analysis (Table 23). Quality control checks (e.g., duplicate measurements, measurements of a secondary standard, or measurements using a different test method or instrument) which are performed on field or laboratory data, are usable for estimating precision, accuracy, and completeness for the project, as described in the Surface Water QAPP (IDEM 2017a Section C1.1 p 180).

Water Chemistry Data

Sample bottles and preservatives used are certified for purity by the manufacturer. Sample collection containers for each parameter, preservative, and holding time (Table 26) adhere to U.S. EPA requirements. Field duplicates and MS or MSD are collected at the rate of one per route or analysis set or one per every 20 samples, whichever is greater. Additionally, field blank samples are taken at a rate of one set per route or analysis set or one per every 20 samples, whichever is greater. A Chain of Custody (COC) form created by the AIMS II database accompanies each sample set through the analytical process.

Table 3. Fixed Station Water Quality Monitoring Program Sampling Locations

Note: Site #'s are derived from river miles and some sites river miles have been corrected. All site numbers are listed for reference.

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
BD-1	1966–Pres	Burns Ditch at US Highway 12, Portage	41	37	06	87	10	35
BD-2E	1966–Pres	Burns Ditch, SR 249 bridge (Chrisman Road), Portage	41	36	45	87	10	26
BD-3W	1966–Pres	Burns Ditch, Portage Boat Yard Dock, Portage	41	36	09	87	11	35
BL-0.1	1973–1985	Big Blue River at US 31, Edinburgh, east side of bridge	39	21	18	85	59	02
BL-0.7	1986–Pres							
BL-61	1976–1985	Big Blue River at Henry CR 400S, north of Spiceland	39	52	24	85	26	20
BL-64	1986–Pres							
BLW-10	1998–Pres	Blue River at SR 62 near Wyandotte Cave	38	13	14	86	17	54
BLW-53	1973–1985	Blue River at US 150, Fredricksburg	38	26	02	86	11	30
BLW-57	1986–Pres							
BMC-1	1998–Pres	Big Monon Ditch, SR 16, north of Monticello	40	52	09	86	46	45
BSC	1998–Pres	Bluespring Caverns, Hartleyville	38	47	50	86	32	43
BU-7	1999–Pres	Busseron Creek at SR 58, west of Carlisle	38	58	27	87	25	34
BWC-4	1999–Pres	Big Walnut Creek at Putnam CR 875S near Reelsville	39	32	08	86	58	35
CC-4	2001–Pres	Cedar Creek at Hursh Road, N of Cedarville	41	12	54	85	03	05
CIC-17	1999–Pres	Cicero Creek at Mt. Pleasant Rd, East of Arcadia	40	10	28	86	00	02

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
CRC-2	1999–Pres	Crooked Creek at SR 49, south of Kouts	41	16	56	87	01	33
DC-5	1998–Pres	Deer Creek, CR 300 N, northeast of Delphi	40	35	25	86	37	17
EC-1	1971–Pres	Eagle Creek at Raymond Street, Indianapolis	39	44	06	86	11	48
EC-7	1986–Pres	Eagle Creek, Lynhurst Drive, Indianapolis	39	46	42	86	15	02
EC-21	1971–Pres	Eagle Creek, 86th Street, south of Zionsville	39	54	37	86	17	08
EEL-1	1986–Pres	Eel River at SR 67, Worthington	39	07	28	86	58	13
ELW-2	1957–1968							
EEL-38	1999–Pres	Eel River, CR 685, southwest of Bowling Green	39	21	02	87	04	21
ELL-7	1957–1970 1976–Pres	Eel River, CR 150 N, northeast of Logansport	40	46	56	86	15	52
ELL-41	1986–Pres	Eel River, SR 15, northeast of Roann (public access site)	40	56	53	85	53	28
ELL-66	1998–Pres	Eel River at SR 5, South Whitley (public access site)	41	04	58	85	37	39
ER–.3	1973–2013 2014–Pres	Elkhart River at SR 120 bridge (Jackson Street), Elkhart Elkhart River at walking bridge off Waterfall Dr.	41 41	41 41	16 09	85 85	58 58	20 59
ER-29	1999–Pres	Elkhart River at US 33, near Benton at public access site 200 ft. downstream of US 33 bridge	41	30	28	85	45	34
EW-1	1980–Pres	East Fork, White River, SR 57, northeast of Petersburg	38	32	21	87	13	23
EW-77	1971–1985	East Fork White River, Williams Dam, public access site downstream of dam	38	48	07	86	38	42
EW-79	1986–Pres							
EW-94	1957–1970 1974–Pres	East Fork White River, US 50/SR 37, south of Bedford, public access site	38	49	33	86	30	47

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
EW-167	1957–1985	East Fork White River, CR 725N, near Seymour water plant, sampled at boat ramp	38	59	14	85	53	56
EW-168	1985–Pres							
EW-189	1971–1972	East Fork, White River, SR 46 at Columbus	39	12	01	85	55	35
EW-239	1986–Pres							
FC-0.6	1986–Pres	Fall Creek, Stadium Drive, Indianapolis	39	46	55	86	10	36
FC-1	1971–1972							
FC-7	1971–Pres	Fall Creek, Keystone Avenue, near Indianapolis Water Co Intake	39	50	04	86	07	19
FC-26	1999–Pres	Fall Creek, Southeastern Pkwy (Old SR 238), near Fortville	39	57	16	85	52	01
FSH-5	1999–Pres	Fish Creek at DeKalb County Road 79, NE of Butler	41	27	54	84	48	51
FSH-18	1999–Pres	Fish Creek at SR 427, NE of Hamilton	41	33	31	84	50	08
FR-17	1999–Pres	Flat Rock River, SR 252, west of Flat Rock	39	21	48	85	51	21
FR-64	1999–Pres	Flat Rock River, Gings Road, NE of Rushville	39	40	24	85	24	04
GC-8	2/1999 – Pres	Graham Creek, CR 75W, ford, near Commiskey	38	51	48	85	37	38
GCR-34	1958–Pres	Grand Calumet River, Hohman Avenue, Hammond (Samples collected by personnel of Hammond Sanitary District Prior to 1971)	41	37	28	87	31	04
GCR-37	1964–1979 1981–Pres	Grand Calumet River, Kennedy Avenue, East Chicago	41	36	51	87	27	42
GCR-42	1986–Pres	Grand Calumet River, Bridge Street, near US Steel, Gary	41	36	32	87	22	19

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
GCR-46	1999–Pres	Grand Calumet River, upstream end of US Steel property downstream end of lagoon	41	36	41	87	17	42
GF-2	1999–Pres	Greens Fork, South Jacksonburg Road, Wayne County	39	46	18	85	06	33
I-63	1999–Pres	Iroquois River at Newton CR 450W, north of Kentland	40	49	13	87	27	51
IHC-0	1973–1976 1978–Pres	Indiana Harbor Canal at mouth, LTV Steel Property, East Chicago	41	40	21	87	26	32
IHC-1	1964–1985	Indiana Harbor Canal, Dickey Road, East Chicago	41	39	19	87	27	33
IHC-2	1986–1991 1993–Pres							
IHC-3S	1964–Pres	Indiana Harbor Canal, Columbus Drive, East Chicago	41	38	22	87	28	16
IHC-3W	1964–Pres	Indiana Harbor Canal, Indianapolis Blvd., East Chicago	41	38	48	87	28	50
IN-2	1999–Pres	Indian Creek, SR 450 near Trinity Springs	38	45	21	86	45	25
IND-23	1999–Pres	Indian Creek, City park south of Corydon (New SR 135)	38	12	05	86	08	42
IWC-6.6	1973–1985	Indianapolis Waterway Canal, Guilford Avenue, Broad Ripple	39	52	17	86	08	29
IWC-9	1986–Pres							
KR-65	1957–1970 1976–1985	Kankakee River, SR 55, Shelby	41	10	58	87	20	26
KR-68	1986–Pres							
KR-91	1999–Pres	Kankakee River CR 500 E, Dunns Bridge	41	13	11	86	58	05
KR-117	2001–Pres	Kankakee River at LaPorte CR 1000S	41	27	41	86	36	50
LBR-3	1999–Pres	Little Blue River at Crawford CR, NE of Alton	38	10	01	86	24	57

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
LC-28	1957–1970	Laughery Creek, SR 350, east of Osgood	39	15	13	85	15	13
LC-54	1998–Pres							
LC-12	1998–Pres	Laughery Creek, road ford downstream of SR 262, near Milton	38	59	03	85	00	03
LCR-13	1958–1970 1971–Pres	Little Calumet River, Hohman Avenue, Hammond (Samples collected by personnel of Hammond Sanitary District prior to 1970)	41	34	40	87	31	20
LCR-39	1971–Pres	Little Calumet River, SR 149, northwest of Porter	41	37	01	87	07	34
LM-DSP	1997–Pres	Dunes State Park, beach sample, 100 yards west of parking lot	41	39	46	87	03	57
LM-EC	1969–Pres	Raw water at East Chicago Waterworks	*41	39	10	87	26	18
LM-G	1969–Pres	Raw water at NIWC, Gary, Borman Park Treatment Plant	*41	35	58	87	20	33
LM-H	1969–Pres	Raw water at Hammond Waterworks	*41	41	32	87	30	22
LM-M	1957–Pres	Raw water at Michigan City Waterworks	*41	43	30	86	54	06
LM-OD	1997–Pres	Raw water at NIWC, Ogden Dunes Treatment Plant	*41	37	05	87	11	58
LM-W	1957-2010	Raw water Whiting Waterworks	*41	40	41	87	29	13
LPC-5	1999–Pres	Little Pigeon Creek, Warrick CR near Yankeetown	37	54	36	87	17	44
LR-7	1998–Pres	Little River, CR 200E, near Huntington	40	53	55	85	24	48
LST-2	1999–Pres	Lost River, Simmons Creek Road, Martin County	38	32	17	86	48	16
M-95	1965–1985	Maumee River at SR 101, 3 miles N of Woodburn	41	10	11	84	50	57
M-114	1986–Pres							

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
M-110	1957–1985	Maumee River at Landin Road, 0.5 miles N of New Haven	41	05	04	85	01	14
M-129	1986–Pres							
M-132	2001–2017	Maumee River at Anthony Boulevard, Ft. Wayne	41	04	55	85	06	53
M-132	2018-Pres	Maumee River at Tecumseh Street, Ft. Wayne	41	05	05	85	7	20
MC-17	1974–1985	Mill Creek, US 231, near Devore	39	26	00	86	45	48
MC-18	1986–Pres							
MC-35	1974–Pres	Mill Creek, US 40 bridge at Stilesville	39	38	12	86	38	26
MS-1	1971–Pres	Mississinewa River, SR 124, near Peru	40	44	57	86	00	43
MS-28	1986–Pres	Mississinewa River, off CR 380 W, bank sample, near Jalapa	40	37	32	85	43	56
MS-28	1957–1970	Mississinewa River, near Highland Ave, sampled 100 yards upstream of dam at boat ramp, Marion	40	34	34	85	39	35
MS-35	1971–1985							
MS-36	1986–Pres							
MS-68	1998–Pres	Mississinewa River at N. Walnut St., 1 mile downstream of Eaton	40	20	38	85	23	18
MS-100	1979–1985	Mississinewa River, CR 100 W, near Ridgeville	40	16	48	84	59	43
MS-99	1986–Pres							
MU-25	1977–1985	Muscatatuck River at SR 39 bridge, west of Austin	38	45	18	85	56	03
MU-20	1986–Pres							
NF-1	1999–Pres	Nolands Fork at Fayette CR 440, near Waterloo	39	42	13	85	06	17

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
P-35	1986–Pres	Patoka River, CR 300 W, North of Oakland City	38	22	58	87	20	17
P-76	1971–Pres	Patoka River at CR 350W, NW of Huntingburg	38	19	46	86	58	00
PC-21	1984–Pres	Big Pine Creek, SR 55, Pine Village	40	27	08	87	15	16
PGN-54	1999–Pres	Pigeon River at CR 675, near Scott, wildlife area boat ramp	41	44	24	85	33	25
PIG-3	1999–Pres	Pigeon Creek, First Avenue bridge, Evansville	37	59	44	87	34	29
PIP-5	1998–Pres	Pipe Creek, CR 925 E, north of Onward	40	43	18	86	11	54
RC-5	1999–Pres	Raccoon Creek, Wabash St, Mecca	39	43	45	87	19	30
RC-46	1999–Pres	Raccoon Creek, CR 625 W, NW of Morton	39	47	25	86	57	31
S-2	1957–1970	Salamonie River at E. Hanging Rock Rd. near Lagro	40	49	47	85	43	08
S-0	1971–Pres							
S-25	1973–1979 1986–Pres	Salamonie River, SR 124, south of Lancaster	40	44	30	85	30	32
S-50	1998–Pres	Salamonie River at CR 500 E, Montpelier	40	33	33	85	16	43
S-71	1989–Pres	Salamonie River at CR 75 S, West of Portland	40	25	39	85	02	20
S-72	1986–1988							
SB-3	4/2014–Pres	School Branch, Noble Dr, near Brownsburg	39	50	50	86	20	47
SB-6	4/2014–Pres	School Branch, Maloney Rd, near Brownsburg	39	53	9	86	21	20
SC-2	1999–Pres	Sugar Creek at Parke CR 525W, at West Union	39	51	17	87	20	10
SC-25	1986–Pres	Sugar Creek at SR 234, Shades State Park at boat ramp area	39	56	46	87	03	31

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
SC-30	1973–1985	Sugar Creek at SR 234, Shades State Park at boat ramp area	39	56	46	87	03	31
SC-39	1999–Pres	Sugar Creek, US 136, Crawfordsville	40	03	00	86	55	21
SC-57	1999–Pres	Sugar Creek at Boone-Montgomery county line road	40	08	36	86	41	45
SD-10	1999–Pres	Singleton Ditch, Parrish St., north of Schneider	41	12	44	87	26	54
SND-4	1998–Pres	Sand Creek at Bartholomew CR 600 E, east of Reddington	39	04	07	85	47	56
SGR-1	1986–Pres	Sugar Creek, CR 800 S, Edinburgh	39	21	39	85	59	53
SJR-50	06/2002–Pres	St. Joseph River at boat ramp, D/S of Auten Road in St. Patrick's Park	41	45	28	86	16	18
SJR-63	06/2002–Pres	St. Joseph River at Mishawaka Avenue, Merrifield Park boat ramp	41	39	59	86	10	04
SJR-78	1971–1985	St. Joseph River at public access site in Bristol	41	43	22	85	48	53
SJR-87	1986–Pres							
SLC-1	1986–Pres	Salt Creek at US 20, Portage	41	35	59	87	08	47
SLC-12	1973–1985	Salt Creek at SR 130, downstream of Valparaiso STP	41	29	55	87	08	29
SLC-17	1986–Pres							
SLT-11	1973–1985	Salt Creek at Oolitic Rd, near Oolitic	38	53	18	86	30	31
SLT-12	1986–Pres							
STJ-0	1973–1985	St. Joseph River at Tennessee Street, Ft. Wayne	41	05	21	85	07	45
STJ-0.5	1986–Pres							
STJ-4	8/2011 – Pres	St. Joseph River at Shoaff Park Boat Ramp, Ft. Wayne	41	08	44	85	06	03

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
STJ-8	1957–1972 2001—7/2011	St. Joseph River at Mayhew Road, NE of Ft. Wayne	41	10	03	85	04	29
STJ-36	1999–Pres	St. Joseph River at SR 8, Newville	41	20	51	84	50	38
STM-.2	1986 – 8/2011	St. Marys River at Spy Run Bridge, Ft. Wayne	41	05	02	85	08	09
STM-.8	9/2011–Pres	St. Marys River at Old Wells Street Walk Bridge, Ft. Wayne	41	04	58	85	08	39
STM-11	1986–2014	St. Marys River at Ferguson Road and S. Anthony Blvd., Ft. Wayne	40	59	28	85	07	01
STM-12	1957–1985							
STM-12	2015–Pres	St. Marys River at Bostick Road Walk Bridge	40	58	45	85	5	41
STM-33	1979–1985	St. Marys River at SR 101, Pleasant Mills	40	46	45	84	50	32
STM-37	1986–Pres							
TC-0.3	1973–1985	Trail Creek at Franklin Street, Michigan City	41	43	22	86	54	16
TC-0.5	1986–Pres							
TC-1	1969–1972 1977–Pres	Trail Creek at US 12 bridge, Michigan City	41	43	16	86	53	48
TC-2	1986–Pres	Trail Creek at Kruegar Park bridge, Michigan City	41	43	22	86	52	32
TC-MC	1993–Pres	Twin Caves at Spring Mill State Park, Mitchell	38	43	27	86	24	34
TR-6	1957–1970 1976–1985	Tippecanoe River, SR 18, near Delphi	40	35	38	86	46	15
TR-9	1986–1988 1992–Pres							

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
TR-56	1998–Pres	Tippecanoe River at SR 119, south of Winamac	41	00	24	86	36	10
TR-107	1986–2008	Tippecanoe River at US 31, northwest of Rochester	41	05	39	86	14	25
TR-105	2009–Pres	Tippecanoe River at CR 200W bridge, northwest of Rochester	41	06	10	86	15	21
TR-139	1998–Pres	Tippecanoe River at Kosciusko CR 700W, south of Atwood	41	14	38	85	58	39
TR-164	1998–Pres	Tippecanoe River, SR 13, North Webster	41	18	59	85	41	32
V-0.8	1973–Pres	Vermillion River, SR 63, Cayuga	39	57	41	87	27	07
VF-38	1998–Pres	Vernon Fork Muscatatuck River, CR 60S, Vernon	38	58	35	85	37	12
WB-94	8/2011–Pres	Wabash River at SR 64 bridge, near Mount Carmel	38	23	52	87	45	18
WB-128	1957–1985	Wabash River, Vigo St/US 50, Vincennes	38	40	53	87	32	07
WB-130	1985–Pres							
WB-172	5/2011–Pres	Wabash River at SR 154, near Hutsonville, IL	39	6	37	87	39	17
WB-175	1978–1985	Wabash River at I & M Generating Plant, west of Fairbanks	39	13	38	87	34	27
WB-183	1986–2010							
WB-219	1976–1985	Wabash River, Public Access Boat Ramp, Clinton	39	39	23	87	23	44
WB-230	1986–Pres							
WB-228	1971–1985	Wabash River, US 36, Montezuma	39	47	32	87	22	28
WB-240	1957–1970 1986–Pres							
WB-240	2012–Pres	Wabash River, Montezuma Town Park Boat Ramp	39	47	10	87	22	24

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
WB-245	1973–1985	Wabash River, SR 234, Cayuga	39	57	06	87	25	09
WB-256	1986–Pres							
WB-284	1999–Pres	Wabash River, CR 200 W, south of Williamsport	40	15	18	87	17	59
WB-292	1973–1985	Wabash River, CR 700 W, near Lafayette	40	24	43	87	02	11
WB-303	1986–Pres							
WB-320	2001–Pres	Wabash River at Americus, Pretty Prairie Road (Washington St.)	40	31	44	86	45	37
WB-336	1971–1972 1977–1985	Wabash River at Cass CR 675, Georgetown	40	44	12	86	30	18
WB-347	1985–Pres							
WB-360	1971–1985	Wabash River, Business US 31, Peru	40	44	32	86	05	48
WB-370	1957–1970 1986–Pres							
WB-390	1977–1985	Wabash River at SR 105 bridge, north of Andrews	40	52	08	85	36	07
WB-402	1986–Pres							
WB-409	1986–Pres	Wabash River at Old SR 9 bridge, Etna Ave. south side of Huntington	40	51	30	85	30	27
WB-409	1973–1985	Wabash River at SR 3 bridge, Markle	40	49	10	85	20	33
WB-420	1986–Pres							
WB-449	2003–Pres	Wabash River, CR 400 W, NE of Geneva	40	37	52	85	00	46
WB-467	2004–Pres	Wabash River at Indiana Ohio Line Rd	40	33	49	84	48	10

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
WC-1	1980–1985	Wildcat Creek, SR 25, north of Lafayette	40	27	13	86	51	05
WC-3	1986–Pres							
WC-32	1998–Pres	Wildcat Creek at SR 75 near Cutler	40	28	54	86	31	48
WC-60	1975–Pres	Wildcat Creek, CR 300 W, west of Kokomo	40	28	25	86	11	03
WC-69	1971–1985	Wildcat Creek, SR 931/S Reed Rd, Kokomo	40	29	10	86	06	27
WC-66	1986–Pres							
WCM-7	1998–Pres	Wildcat Creek, Middle Fork, SR 26 at Edna Mills	40	25	01	86	39	49
WCS-34	1985–Pres	Wildcat Creek, South Fork, at CR 200 N, northwest of Frankfort	40	18	54	86	32	37
WHE-27	1971–1972 1976–Pres	Whitewater River, East Fork, at Potter Shop Rd, Abington	39	43	57	84	57	35
WHW-22	1986–Pres	Whitewater River at old SR 1, Cedar Grove	39	21	12	84	56	34
WHW-47	1999–Pres	Whitewater River at Laurel	39	29	53	85	10	57
WL-SL	1966–Pres	Wolf Lake at culvert, State Line Road and 129th St., Hammond	41	39	43	87	31	30
WLC-2	1999–Pres	Whitelick Creek at Morgan CR 600 N, just east of Centerton	39	30	49	86	22	48
WLC-1	1968–1970	Whitelick Creek at Morgan CR 600 N, just east of Centerton	39	30	49	86	22	48
WR-19	1957–1972 1986–11/2011	White River, Old US 41, Hazleton	38	29	24	87	33	00
WR-19	11/2011–Pres	White River, Public Access Site boat ramp, Hazleton	38	29	27	87	32	35

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
WR-48	1971–1985	White River, SR 61, Petersburg	38	30	42	87	17	19
WR-46	1985–Pres							
WR-80	1971–1985	White River, SR 358, near Edwardsport	38	47	42	87	14	29
WR-81	1986–Pres							
WR-84	1957–1970							
WR-134	1999–Pres	White River, SR 157, Worthington	39	06	36	86	57	48
WR-162	1986–Pres	White River, South Main St, Spencer	39	16	49	86	45	43
WR-166	1957–1985							
WR-192	1971–1977 1986–Pres	White River, SR 39, Martinsville	39	26	02	86	26	58
WR-194	1957–1970							
WR-210	1996–Pres	White River, SR 144, near Waverly	39	34	01	86	15	21
WR-248	1986–Pres	White River, 86th Street, Nora	39	54	36	86	06	18
WR-249	1971–1985							
WR-251	1957–1970							
WR-279	1971-2009	White River at SR13, Perkinsville	40	08	32	85	51	46
WR-280	2009–Pres	White River Perkinsville Boat Ramp, 1 mile east of SR13 on Water Street	40	08	32	85	51	18
WR-293	1986–Pres	White River, Edgewater Park Boat Ramp, Anderson	40	06	22	85	40	18
WR-300	1965–1970	White River, Tiger Drive, Yorktown	40	10	44	85	29	41

SITE #	YEARS	STREAM AND LOCATION	LATITUDE (DMS)			LONGITUDE (DMS)		
WR-310	1971–1985							
WR-309	1985–Pres							
WR-319	1973–Pres	White River, Memorial Drive, Muncie	40	10	42	85	20	32
WR-334	1966–1970	White River, US 27, Winchester	40	10	56	84	58	08
WR-350	1978–1985							
WR-348	1986–Pres							
YR-12	1999–Pres	Yellow River, Starke CR 500E, east side of Knox	41	18	09	86	36	05

* Location of waterworks or treatment plant (intake is from Lake Michigan)

Table 4. Locations Selected for Dissolved Metals and Dissolved Organic Carbon Sampling

Site #	Stream	Location
EW-79	East Fork White River	Williams Dam Public Access Site
GCR-37	Grand Calumet River	Kennedy Ave, East Chicago
P-76	Patoka River	CR 350 W, near Huntingburg
STJ-4	St. Joseph River	Shoaff Park Boat Ramp, Ft. Wayne
TR-9	Tippecanoe River	SR 18, near Delphi
WB-94	Wabash River	SR 64, near Mt. Carmel
WB-230	Wabash River	Public Access Boat Ramp, Clinton
WB-347	Wabash River	CR 675 W, Georgetown
WC-60	Wildcat Creek	CR 300 W, near Kokomo
WR-19	White River	Public Access Boat Ramp, Hazleton
WR-192	White River	SR 39, Martinsville
WR-293	White River	Edgewater Park Boat Ramp, Anderson

Table 5. Locations Selected for Pesticide Sampling

Site #	Stream	Location
EC-21	Eagle Creek	86th St, near Zionsville
EW-94	East Fork White River	US 50/SR 37, near Bedford
EW-168	East Fork White River	CR 725 N, Seymour
FC-7	Fall Creek	Keystone Ave, Indianapolis
IWC-9	Indianapolis Waterway Canal	Guilford Ave, Indianapolis
LC-54	Laughery Creek	SR 350, near Osgood
LM-H	Lake Michigan	Raw water at Hammond Waterworks
LM-M	Lake Michigan	Raw water at Michigan City Waterworks
LM-OD	Lake Michigan	Raw water at NIWC, Ogden Dunes Treatment Plant
SB-3	School Branch	Noble Dr, near Brownsburg
SB-6	School Branch	Maloney Rd, near Brownsburg
SJR-63	St. Joseph River	Mishawaka Ave, Merrifield Park Boat Ramp
SLC-17	Salt Creek	SR 130, Valparaiso
SLT-12	Salt Creek	Old SR 37, Oolitic

Site #	Stream	Location
STJ-0.5	St. Joseph River	Tennessee St, Ft. Wayne
STM-0.8	St. Marys River	Old Wells Street Walk Bridge
WC-66	Wildcat Creek	SR 931/S Reed Rd, Kokomo
WR-319	White River	Memorial Drive, Muncie

Table 6. Locations Selected for Dissolved Reactive Phosphorus Sampling

Site #	Stream	Location
STM-0.8	St. Marys River	Old Wells Street Walk Bridge
STJ-0.5	St. Joseph River	Tennessee St, Ft. Wayne
CC-4	Cedar Creek	Hursh Road
M-114	Maumee River	SR 101
M-129	Maumee River	Landin Road, Ft. Wayne
STM-12	St. Marys River	Bostick Road Walk Bridge, Ft. Wayne
STJ-4	St. Joseph River	Shoaff Park Boat Ramp, Ft. Wayne
M-132	Maumee River	Tecumseh St, Ft. Wayne
FSH-18	Fish Creek	SR 427
FSH-5	Fish Creek	County Road 79
STJ-36	St. Joseph River	SR 8, Newville
STM-37	St. Marys River	SR 101, Pleasant Mills

Table 7. Southeast Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	FR-64 Rushville 1	WHW-47 Laurel 2	WHW-22 Cedar Grove 3	LC-12 Milton 4	LC-54 Osgood 5	VF-38 Vernon 6	GC-8 Paris 7	SND-4 Reddington 8	FR-17 Flat Rock 9
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD									
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride									
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica									
Aluminum									
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)									
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium									
Silver									
Sodium									
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**									
Organics/Pesticides					✓				

Table 8. East Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	BL-64 Spiceland 10	GF-2 Jacksonburg 11	NF-1 Waterloo 12	WHE-27 Abington 13	WR-348 Winchester 14	WR-319 Muncie 15	WR-309 Yorktown 16	WR-293 Anderson 17	FC-26 Fortville 18
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC								✓	
BOD	✓			✓	✓	✓	✓	✓	
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride						✓		✓	
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica									
Aluminum									
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)					✓				
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium								✓	
Selenium									
Silver									
Sodium								✓	
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**						✓	✓	✓	✓
Organics/Pesticides						✓			

Table 9. Indianapolis Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	FC-0.6 Stadium Dr 19	FC-7 Keystone 20	IWC-9 Broad Ripple 21	WR-248 Nora 22	EC-21 Zionsville 23	EC-7 Speedway 24	EC-1 Raymond 25	SB-6 Maloney Rd 167	SB-3 Noble Dr 168
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD	✓	✓	✓	✓	✓	✓	✓		
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride		✓	✓			✓			
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica									
Aluminum (µg/l)									
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)			✓						
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium									
Silver									
Sodium									
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**	✓	✓	✓	✓	✓	✓	✓	✓	✓
Organics/Pesticides		✓	✓		✓			✓	✓

Table 10. Northeast Central Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	WR-280 Perkinsville 164	CIC-17 Acadia 27	WC-60 Kokomo 28	WC-66 Kokomo 29	MS-36 Marion 30	MS-28 Jalapa 31	S-25 Lancaster 32	WB-449 Geneva 33	WB-467 State Line 163
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC			✓						
BOD	✓		✓	✓	✓	✓	✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride									
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica									
Aluminum (µg/l)									✓
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)								✓	
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium	✓		✓						
Selenium									
Silver									
Sodium	✓		✓						
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**									
Organics/Pesticides				✓					

Table 10. Northeast Central Route - Fixed Station Monitoring Parameters (Cont)

SITE LOCATION SITE NUMBER	S-50 Montpelier 34	S-71 Portland 35	MS-99 Ridgeville 36	MS-68 Eaton 37
Alkalinity (CaCO3)	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓
COD	✓	✓	✓	✓
TOC	✓	✓	✓	✓
DOC				
BOD		✓	✓	
Solids – Total	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓
DRP				
Solids – Dissolved	✓	✓	✓	✓
Fluoride				
Chloride	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓
Cyanide – Total				
Cyanide – Free				
Cyanide – Amenable				
Diss. React. Silica				
Aluminum (µg/l)				
Arsenic (µg/l)	✓	✓	✓	✓
Barium				
Cadmium (µg/l)	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓
Manganese (µg/l)				
Nickel (µg/l)	✓	✓	✓	✓
Potassium				
Selenium				
Silver				
Sodium				
Zinc (µg/l)	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓
***E. coli* (MPN)**				
Organics/Pesticides				

Table 11. Northeast Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	WB-420 Markle 38	LR-7 Mardenis 39	WB-409 Huntington 40	WB-402 Andrews 41	ELL-66 S. Whitley 42	FSH-18 Butler 46	FSH-5 Artic 47	STJ-36 Newville 48	STM-37 Pleasant Mills 52
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD	✓		✓	✓					✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP						✓	✓	✓	✓
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride									
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Aluminum (µg/l)	✓			✓					✓
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)									
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium									
Silver									
Sodium									
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**									
Organics/Pesticides									

Table 12. Northeast Route -Ft. Wayne- Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	STJ-4 Shoaff Park 161	M-132 Anthony 162	STM-.8 Old Wells St 43	STJ-.5 Tennessee 44	CC-4 Cedar Creek 45	M-114 Woodburn 49	M-129 New Haven 50	STM-12 Bostick Rd 51
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓
DOC	✓							
BOD			✓	✓		✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓
DRP	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride				✓				
Chloride	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total								
Cyanide – Free								
Cyanide – Amenable								
Aluminum (µg/l)			✓			✓		
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Barium								
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)	✓	✓	✓	✓			✓	
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Potassium	✓							
Selenium								
Silver								
Sodium	✓							
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**								
Organics/Pesticides			✓	✓				

Table 13. North Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	TR-105 Rochester 53	TR-139 Atwood 54	TR-164 N. Webster 55	ER-29 Benton 56	PGN-54 Scott 57	SJR-87 Bristol 58	ER-.3 Elkhart 59	SJR-63 Mishawaka 60	SJR-50 South Bend 61
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD	✓					✓	✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride									
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Aluminum (µg/l)									
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)						✓		✓	
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium									
Silver									
Sodium									
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**									
Organics/Pesticides								✓	

Table 14. North Central Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	WCS-34 Frankfort 62	WCM-7 Edna Mills 63	WC-32 Cutler 64	DC-5 Delphi 65	TR-9 Delphi 66	WC-3 Lafayette 67	WB-320 Americus 68	WB-347 Georgetown 69	ELL-7 Adamsboro 70
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC					✓			✓	
BOD	✓				✓	✓	✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride									
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica									
Aluminum (µg/l)								✓	
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)							✓		
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium					✓			✓	
Selenium									
Silver									
Sodium					✓			✓	
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**									
Organics/Pesticides									

Table 14. North Central Route - Fixed Station Monitoring Parameters (Cont)

SITE LOCATION SITE NUMBER	PIP-5 Onward 71	WB-370 Peru 72	MS-1 Peru 73	ELL-41 Roann 74	S-0 Lagro 75
Alkalinity (CaCO3)	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓
DOC					
BOD		✓	✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓
DRP					
Solids – Dissolved	✓	✓	✓	✓	✓
Fluoride					
Chloride	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓
Cyanide – Total					
Cyanide – Free					
Cyanide – Amenable					
Diss. React. Silica					
Aluminum (µg/l)		✓			
Arsenic (µg/l)	✓	✓	✓	✓	✓
Barium					
Cadmium (µg/l)	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓
Manganese (µg/l)					
Nickel (µg/l)	✓	✓	✓	✓	✓
Potassium					
Selenium					
Silver					
Sodium					
Zinc (µg/l)	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓
Strontium (µsg/l)	✓	✓	✓	✓	✓
***E. coli* (MPN)**					
Organics/Pesticides					

Table 15. West Route- Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	SC-57 Thorntown 76	WB-303 Lafayette 77	PC-21 Pine Village 78	WB-284 Williamsport 79	SC-39 Crawfordsville 80	RC-46 Morton 81	SC-25 Shades S.P. 82	WB-256 Cayuga 83	V-.8 Cayuga 84
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD		✓	✓				✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride									
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica									
Aluminum (µg/l)		✓						✓	
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)		✓	✓						
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium									
Silver									
Sodium									
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**									
Organics/Pesticides									

Table 15. West Route - Fixed Station Monitoring Parameters (Cont)

SITE LOCATION SITE NUMBER	SC-2 West Union 85	WB-240 Montezuma 86	RC-5 Mecca 87	WB-230 Clinton 88	WB-172 Huntsville 89	EEL-38 B. Green 90	BWC-4 Reelsville 91
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓
DOC				✓			
BOD		✓		✓	✓		
Solids – Total	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓
DRP							
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓
Fluoride							
Chloride	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total							
Cyanide – Free							
Cyanide – Amenable							
Diss. React. Silica							
Aluminum (µg/l)							
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓
Barium							
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)					✓		
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓
Potassium				✓			
Selenium							
Silver							
Sodium				✓			
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**							
Organics/Pesticides							

Table 16. Northwest Central Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	I-63 Kentland 92	SD-10 Schneider 93	KR-68 Shelby 94	CRC-2 Kouts 95	KR-91 Dunns Br. 96	KR-117 Kingsbury 97	YR-12 Knox 98	TR-56 Winamac 99	BMC-1 Monon 100
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD			✓			✓			
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride									
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica									
Aluminum (µg/l)									
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)						✓			
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium (µg/l)									
Silver									
Sodium									
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**									
Organics/Pesticides									

Table 17. Northwest-A Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	TC-2 Mich. City 101	TC-1 Mich. City 102	LM-M Mich. City 103	TC-.5 Mich. City 104	LM-DSP Dune S.P. 105	LCR-39 Porter 106	SLC-17 Valparaiso 107	SLC-1 Portage 108	BD-3W Boat Yard 109
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride			✓	✓	✓	✓	✓	✓	✓
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total									
Cyanide – Free									
Cyanide – Amenable									
Diss. React. Silica		✓	✓	✓	✓				✓
Aluminum (µg/l)	✓		✓						
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium		✓	✓	✓	✓				
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)	✓		✓	✓	✓				
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium (µg/l)		✓	✓	✓	✓				
Silver		✓	✓	✓	✓				
Sodium		✓	✓	✓	✓				✓
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**					✓				
Organics/Pesticides			✓				✓		

Table 17. Northwest-A Route - Fixed Station Monitoring Parameters (Cont)

SITE LOCATION SITE NUMBER	BD-2E Portage 110	BD-1 Portage 111	LM-OD Ogden Dune 112
Alkalinity (CaCO3)	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓
Ammonia-N	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓
Nitrogen – TKN	✓	✓	✓
Phosphorous – Total	✓	✓	✓
COD	✓	✓	✓
TOC	✓	✓	✓
DOC			
BOD	✓	✓	✓
Solids – Total	✓	✓	✓
Solids – Suspended	✓	✓	✓
DRP			
Solids – Dissolved	✓	✓	✓
Fluoride	✓	✓	✓
Chloride	✓	✓	✓
Sulfate	✓	✓	✓
Cyanide – Total			
Cyanide – Free			
Cyanide – Amenable			
Diss. React. Silica	✓	✓	✓
Aluminum (µg/l)			
Arsenic (µg/l)	✓	✓	✓
Barium (µg/l)		✓	✓
Cadmium (µg/l)	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓
Copper (µg/l)	✓	✓	✓
Iron (µg/l)	✓	✓	✓
Lead (µg/l)	✓	✓	✓
Manganese (µg/l)		✓	✓
Nickel (µg/l)	✓	✓	✓
Potassium			
Selenium (µg/l)		✓	✓
Silver (µg/l)		✓	✓
Sodium	✓	✓	✓
Zinc (µg/l)	✓	✓	✓
Boron (µg/l)	✓	✓	✓
Strontium (µg/l)	✓	✓	✓
***E. coli* (MPN)**		✓	✓
Organics/Pesticides			✓

Table 18. Northwest-B Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	LM-G Gary 113	GCR-42 Gary 114	GCR-37 E. Chicago 115	IHC-3S E. Chicago 116	IHC-3W E. Chicago 117	LM-EC E. Chicago 118	IHC-2 E. Chicago 119	IHC-0 LTV 120
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓
DOC			✓					
BOD	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓
DRP								
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride	✓	✓	✓	✓	✓	✓	✓	✓
Chloride	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total		✓	✓	✓	✓		✓	✓
Cyanide – Free		✓	✓	✓	✓		✓	✓
Cyanide – Amenable		✓	✓	✓	✓		✓	✓
Diss. React. Silica	✓	✓	✓	✓	✓	✓	✓	✓
Aluminum (µg/l)		✓	✓	✓	✓		✓	✓
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Barium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)		✓	✓	✓	✓		✓	✓
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Potassium			✓					
Selenium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Silver (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Sodium	✓	✓	✓	✓	✓	✓	✓	✓
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**								
Organics/Pesticides								

Table 18. Northwest-B Route - Fixed Station Monitoring Parameters (Cont)

SITE LOCATION SITE NUMBER	LM-H Hammond 122	WL-SL Wolf Lake 123	GCR-34 Hammond 124	LCR-13 Munster 125	GCR-46 Gary 160
Alkalinity (CaCO3)	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓
DOC					
BOD	✓	✓	✓	✓	✓
Solids – Total	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓
DRP					
Solids – Dissolved	✓	✓	✓	✓	✓
Fluoride	✓		✓		✓
Chloride	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓
Cyanide – Total			✓	✓	✓
Cyanide – Free			✓	✓	✓
Cyanide – Amenable			✓	✓	✓
Diss. React. Silica	✓		✓		✓
Aluminum (µg/l)			✓		✓
Arsenic (µg/l)	✓	✓	✓	✓	✓
Barium (µg/l)	✓		✓		✓
Cadmium (µg/l)	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓
Manganese (µg/l)	✓		✓		✓
Nickel (µg/l)	✓	✓	✓	✓	✓
Potassium					
Selenium (µg/l)	✓		✓		✓
Silver (µg/l)	✓		✓		✓
Sodium	✓		✓		✓
Zinc (µg/l)	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓
Strontium (uµ/l)	✓	✓	✓	✓	✓
***E. coli* (MPN)**					
Organics/Pesticides	✓				

Table 19. Southwest-A Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	MC-35 Stilesville 126	MC-18 Devore 127	WR-162 Spencer 128	EEL-1 Worthington 129	WR-134 Worthington 130	BU-7 Carlisle 131	WR-81 Edwardsport 132	WB-130 Vincennes 133	WR-19 Hazleton 134	WB-94 Mt. Carmel 166
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									✓	✓
BOD	✓	✓	✓	✓			✓	✓	✓	
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP										
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride								✓		
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total										
Cyanide – Free										
Cyanide – Amenable										
Diss. React. Silica										
Aluminum										
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium										
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)										
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									✓	✓
Selenium										
Silver										
Sodium									✓	✓
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**										
Organics/Pesticides										

Table 20. Southwest-B Route - Fixed Station Monitoring Parameters

SITE LOCATION / SITE NUMBER	WR-46 Petersburg 135	EW-1 Petersburg 136	P-35 Oakland City 137	PIG-3 Evansville 138	LPC-5 Yankeetown 139	P-76 Huntingburg 140	LST-2 Windom 141	IN-2 Trinity 142
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓
DOC						✓		
BOD	✓	✓	✓			✓		
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓
DRP								
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride								
Chloride	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total								
Cyanide – Free								
Cyanide – Amenable								
Diss. React. Silica								
Aluminum								
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Barium								
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)	✓							
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Potassium						✓		
Selenium								
Silver								
Sodium						✓		
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**								
Organics/Pesticides								

Table 21. South-A Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	SGR-1 Edinburgh 143	BL-.7 Edinburgh 144	EW-239 Columbus 145	EW-168 Seymour 146	MU-20 Austin 147	BLW-57 Fredericksb 148	IND-23 Corydon 149	BLW-10 Wyandotte 150	LBR-3 Alton 151
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen –TKN	✓	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓	✓
DOC									
BOD	✓	✓	✓	✓	✓	✓			
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓	✓
DRP									
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride				✓					
Chloride	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total				✓					
Cyanide – Free				✓					
Cyanide – Amenable				✓					
Diss. React. Silica									
Aluminum									
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barium									
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)									
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Potassium									
Selenium									
Silver									
Sodium									
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**	✓	✓	✓	✓	✓	✓	✓	✓	✓
Organics/Pesticides				✓					

Table 22. South-B Route - Fixed Station Monitoring Parameters

SITE LOCATION SITE NUMBER	TC-MC Twin Caves 152	BSC Bluespring 153	EW-79 Williams 154	SLT-12 Bedford 155	EW-94 Bedford 156	WR-192 Martinsville 157	WLC-2 Centerton 158	WR-210 Waverly 159
Alkalinity (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Hardness (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Calcium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Magnesium (CaCO3)	✓	✓	✓	✓	✓	✓	✓	✓
Ammonia-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrate + Nitrite-N	✓	✓	✓	✓	✓	✓	✓	✓
Nitrogen – TKN	✓	✓	✓	✓	✓	✓	✓	✓
Phosphorous – Total	✓	✓	✓	✓	✓	✓	✓	✓
COD	✓	✓	✓	✓	✓	✓	✓	✓
TOC	✓	✓	✓	✓	✓	✓	✓	✓
DOC			✓			✓		
BOD	✓	✓	✓	✓	✓	✓		✓
Solids – Total	✓	✓	✓	✓	✓	✓	✓	✓
Solids – Suspended	✓	✓	✓	✓	✓	✓	✓	✓
DRP								
Solids – Dissolved	✓	✓	✓	✓	✓	✓	✓	✓
Fluoride								
Chloride	✓	✓	✓	✓	✓	✓	✓	✓
Sulfate	✓	✓	✓	✓	✓	✓	✓	✓
Cyanide – Total								
Cyanide – Free								
Cyanide – Amenable								
Diss. React. Silica								
Aluminum								
Arsenic (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Barium								
Cadmium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Chromium – Total (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Copper (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Iron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Lead (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Manganese (µg/l)	✓	✓	✓					✓
Nickel (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Potassium			✓			✓		
Selenium								
Silver								
Sodium			✓			✓		
Zinc (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Boron (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
Strontium (µg/l)	✓	✓	✓	✓	✓	✓	✓	✓
***E. coli* (MPN)**								
Organics/Pesticides				✓	✓			

Table 23. List of Parameters Measured in the Field

Parameters	Method	Sensitivity Limit	Units
DO (Data sonde Optical)	ASTM D888-09(C)	0.01	mg/L
DO (Field Meter)	SM 4500-OG[1]	0.01	mg/L
DO % Saturation (Data sonde Optical)	ASTM D888-09(C)	0.01	%
pH (Data sonde)	EPA 150.2	0.01	SU
pH (Field pH meter)	SM 4500H-B[1]	0.01	SU
Specific Conductance (Data sonde)	SM 2510B	1.0	µS/cm
Temperature (Data sonde)	SM 2550B(2)	0.1	°C
Temperature (Field Meter)	SM 2550B(2)[1]	0.1	°C
Turbidity (Data sonde)	SM 2130B	0.02	NTU
Turbidity (Hach Turbidimeter)	EPA 180.1[1]	0.01	NTU

[1] Method used for Field Calibration Verification

Table 24. Organic Parameters for Fixed Stations Near Drinking Water Supply Surface Water Intakes

Pesticide and SVOC Parameters from EPA Method 525.3	CASRN	IDEM CRQL (µg/L)	ISDH MRL (µg/L)
4,4'-DDT	50-29-3	0.1	0.2
Acetochlor	34256-82-1	0.1	0.22
Alachlor	15972-60-8	0.1	0.14
Aldrin	309-00-2	0.1	1.84
Atrazine (Aatrex)	1912-24-9	0.1	0.28
Chlordane, Alpha-	5103-71-9	0.1	0.14
Chlordane, Gamma-	5103-74-2	0.1	0.2
Chlorpyrifos	2921-88-2	0.1	0.2
Clomazone	81777-89-1	0.1	0.2
Cyanazine (Bladex)	21725-46-2	0.1	0.16
Desethylatrazine	6190-65-4	1.0	0.4
Desisopropylatrazine	1007-28-9	1.0	6.6
Di(2-ethylhexyl) adipate	103-23-1	1.0	2
Dieldrin	60-57-1	0.1	2
Endrin	72-20-8	0.1	4
Heptachlor	76-44-8	0.1	1.96
Heptachlor Epoxide	1024-57-3	0.1	0.44
Lindane	58-89-9	0.1	0.28
Methoxychlor	72-43-5	0.1	0.16
Metolachlor	51218-45-2	0.1	0.18
Nonachlor, cis-	5103-73-1	0.1	0.36
Oxychlordane	27304-13-8	0.1	0.16
Pendimethalin	40487-42-1	0.1	0.36
Pentachlorophenol	87-86-5	0.1	0.18
Propachlor	1918-16-7	0.1	0.2
Simazine	122-34-9	0.1	0.36
trans-Nonachlor	39765-80-5	0.1	0.2
Benzo[a]pyrene	50-32-8	0.1	4.2
DEHP	117-81-7	1.0	1.44
Hexachlorobenzene	118-74-1	0.1	0.36
Hexachlorocyclopentadiene	77-47-4	0.1	0.2
Trifluralin	1582-09-8	0.1	0.68

Table 25. Parameter Test Methods and Reporting Limits – General Chemistries and Nutrients

General Chemistries	CASRN	Method	IDEM CRQL (mg/L)	ISDH MRL (mg/L)
Alkalinity (as $CaCO_3$)	E-14506	EPA 310.2	10.0	10
Chloride	16887-00-6	SM4500Cl-E	1	5
Fluoride	16984-48-8	EPA 340.2	0.1	0.1
Cyanide (Total)	57-12-5	EPA 335.4	0.01	0.005
Cyanide (Weak Acid Dissociable)	57-12-5	SM4500CN-I	0.01	0.005
Cyanide (Amenable to Chlorination)	57-12-5	SM4500CN-G	0.01	0.005
Hardness (as $CaCO_3$)	E-11778	SM2340B	0.4	30
Solids, Dissolved Total (TDS)	E-10173	SM2540C	10.0	25
Solids, Suspended Total, (TSS)	E-10151	SM2540D	4.0	10
Solids, Total (TS)	E-10151	SM2540B	1.0	25
Sulfate	14808-79-8	EPA 375.2	0.5	5
Calcium	7440-70-2	SM 3500-Ca D	2.0	0.2
Magnesium	7439-95-4	EPA 200.7	95	0.2

Nutrients:	CASRN	Method	IDEM CRQL (mg/L)	ISDH MRL (mg/L)
TBOD5	E-10106T5	SM5210B	2.0	2
COD	E-10117	SM5220D	3.0	0.5
DOC	E-DOC	EPA 415.3	1.0	0.5
Nitrogen, Ammonia	7664-41-7	EPA 350.1	0.01	0.1
Nitrogen, Nitrate+Nitrite	E-10128	EPA 353.1	0.01	0.1
DRP, *Phosphorus, ortho*	14265-44-2	EPA 365.1	0.01	0.002
Phosphorus, Total	7723-14-0	EPA 365.1	0.01	0.03
TKN	E-10264	EPA 351.2	0.1	0.3
TOC	E-10195	EPA 415.3	1.0	0.5

Table 26. Parameter Test Methods and Reporting Limits – Metals

Total and/or Dissolved Metals:	CASRN	Method	IDEM CRQL (µg/L)	ISDH MRL (µg/L)
Aluminum	7429-90-5	EPA 200.7	20.0	50
Arsenic	7440-38-2	EPA 200.8	2.0	1.2
Barium	7440-39-3	EPA 200.8	2.0	1.2
Boron	7440-42-8	EPA 200.7	20	20
Cadmium	7440-43-9	EPA 200.8	1.0	1
Chromium, Total (VI + III)	7440-47-3	EPA 200.8	3.0	1.2
Copper	7440-50-8	EPA 200.8	2.0	1
Iron	7439-89-6	EPA 200.7	20	20
Lead	7439-92-1	EPA 200.8	2.0	1
Manganese	7439-96-5	EPA 200.8	0.5	1
Nickel	7439-92-1	EPA 200.8	1.5	1.4
Selenium	7440-02-0	EPA 200.8	4.0	2.2
Silica (Reactive)	7631-86-9	SM4500-Si C	5,000	1,000
Silver	7782-49-2	EPA 200.8	0.3	1
Sodium	7440-23-5	EPA 200.7	100	1,000
Strontium	7440-24-6	EPA 200.7	2.0	3
Zinc	7440-66-6	EPA 200.7	6.0	3

Table 27. Parameter Test Methods and Reporting Limits – *E coli*

Bacteriology:	CASRN	Method	IDEM CRQL (MPN/100mL)	ISDH MRL (MPN/100mL)
E. coli	ECOLI	SM9223B	1.0	1.0

Table 28. Water Chemistry Sample Container, Preservation, and Holding Time Requirements

Parameter	Container	Preservative	Holding	Temp.
Alkalinity as $CaCO_3$	1 L, plastic, narrow mouth	None	14 days	≤ 6 °C
Ammonia-N	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days	≤ 6 °C
Chloride	1 L, plastic, narrow mouth	None	28 days	≤ 6 °C
Fluoride	1 L, plastic, narrow mouth	None	28 days	≤ 6 °C
Dissolved Reactive Silica	1 L, plastic, narrow mouth	None	28 days	≤ 6 °C
BOD_5	1 L, plastic, narrow mouth	None	2 days	≤ 6 °C
E. coli	120 mL, presterilized, wide mouth	0.0008% $Na_2S_2O_3$	6 hours	< 10 °C
Chemical Oxygen Demand	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days	≤ 6 °C
Hardness (as $CaCO_3$) Calculated	1 L, plastic, narrow mouth	HNO_3 < pH 2	6 months	N/A
Cyanide (All Forms)	1 L, plastic, narrow mouth	NaOH > pH 12	14 days	≤ 6 °C
Nitrate + Nitrite-N	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days	≤ 6 °C
Total Phosphorus	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days	≤ 6 °C
Dissolved Reactive Phosphorus (DRP), *Phosphorus, ortho*	500 mL, Amber plastic, narrow mouth	None use Dry Ice to freeze	6 days If frozen	≤ 0 °C frozen
Solids (All Forms)	1 L, plastic, narrow mouth	None	7 days	≤ 6 °C
Sulfate	1 L, plastic, narrow mouth	None	28 days	≤ 6 °C
Total Kjeldahl Nitrogen	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days	≤ 6 °C
Organic Carbon (Total and Dissolved)	1 L, plastic, narrow mouth	H_2SO_4 < pH 2	28 days	≤ 6 °C
Metals (Total and Dissolved)	1 L, plastic, narrow mouth	HNO_3 < pH 2	6 months	N/A
Pesticides (Semivolatile Organics)	1 L, glass, narrow mouth	none	44 days	≤ 6 °C

C. Assessment and Oversight

Field and laboratory performance and system audits are conducted to ensure good quality data. The field and laboratory performance checks include: precision measurements by RPD of field and laboratory duplicates (IDEM 2017a, p. 57-58, 62-64); accuracy measurements by percent of recovery of MS and MSD samples analyzed in the laboratory (IDEM 2017a, p. 58, 62-64); and completeness measurements by the percent of planned samples actually collected, analyzed, reported, and usable for the project (IDEM 2017a, p 59).

Field audits are conducted biannually by staff of the IDEM WAPB to ensure sampling activities adhere to approved SOPs. Audits are systematically conducted by WAPB staff to include all WAPB personnel which engage in field sampling activities. WAPB field staff involved with sample collection and preparation are evaluated by staff trained in the associated sampling SOPs, and in the processes related to conducting an audit. Staff produce an evaluation report documenting each audit for review by those field staff audited as well as WAPB management. Corrective actions are communicated to, and implemented by, field staff as a result of the audit process (IDEM 2017a, p 183).

Data Quality Assessment Levels

The samples and various types of data collected by this program are intended to meet the quality assurance criteria and rated DQA Level 3, as described in the Surface Water QAPP (IDEM 2017a, p 186).

D. 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. A quality assurance audit report is submitted to the QA manager and project manager for review of this project, should problems arise, need to be investigated, or corrected. 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 data assessment by users to ensure data meets the project DQOs.

D.1. Quality Assurance/Data Qualifiers and Flags

The various data qualifiers and flags used for quality assurance and validation of the data are found in the Surface Water QAPP (IDEM 2017a p 188-189).

D.2. Data Usability-Information, Data, and Reports

The environmental data collected and its usability are 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 in the Surface Water QAPP (IDEM 2017a p 186).

Data collected for this project are recorded in the AIMS II database and used in the preparation of the Indiana Integrated Water Monitoring and Assessment Report. All data and reports are 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 is uploaded into virtual file cabinet, all field sheets are stored in the AIMS II database, and results are uploaded to the Water Quality Exchange, allowing the data to be shared with U.S. EPA and others.

D.3. Laboratory and Estimated Cost

Laboratory analysis and data reporting for this project complies with the Surface Water QAPP (IDEM 2017a); Request for Proposals 16-074 (see IDEM 2016); and the IDEM QMP (IDEM 2018). All laboratory analytical tests are performed by the ISDH environmental lab in Indianapolis, Indiana at no direct cost.

D.4. Personnel Safety and Reference Manuals

Table 29. Personal Safety and Reference Manuals

Role	Required Training/Experience	Training References	Training Notes
All staff which participate in field activities	- Basic first aid and cardiopulmonary resuscitation (CPR)	- A minimum of 4 hours of in-service training provided by WAPB (IDEM 2010a)	- Staff lacking 4 hours of in-service training or appropriate certification will always be accompanied in the field by WAPB staff meeting health and safety training requirements
	- Personal Protective Equipment (PPE) Policy	- IDEM 2008	
	- Personal flotation devices	- February 29, 2000 WAPB internal memorandum regarding use of approved personal flotation devices	- 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,

Role	Required Training/Experience	Training References	Training Notes
			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.

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

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 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. Indiana Water Quality Monitoring Strategy 2017-2021. OWQ, Watershed Assessment and Planning Branch. Indianapolis, Indiana.

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

IDEM 2018. IDEM Quality Management Plan 2018. IDEM, Indiana Government Center North, 100 N. Senate Ave., Indianapolis, Indiana, 46204

IDEM 2020a. Water Chemistry Field Sampling Procedures. B-015-OWQ-WAP-XXX-20-T-R0. OWQ, Watershed Assessment and Planning Branch. Indianapolis, Indiana

IDEM 2020b. Calibration of YSI Multiparameter Data Sonde. B-014-OWQ-WAP-XXX-20-T-R0. OWQ, Watershed Assessment and Planning Branch. Indianapolis, Indiana

Clesceri, L.S., Greenburg, A.E., Eaton, A.D., 2012. SM-Standards Methods for the Examination of Water and Wastewater 22nd Edition. American Public Health Association

YSI Incorporated. 2017, revision k. EXO User Manual, Yellow Springs, Ohio

YSI Incorporated. 2018, revision f. ProDIGITAL User Manual, Yellow Springs, Ohio

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