2020 Annual Groundwater Monitoring and Corrective Action Report - Primary 1 and Primary 2

NIPSCO LLC Bailly Generating Station

Prepared Pursuant to 40 CFR §257.90(e) and Corresponding Regulations under 329 Indiana Administrative Code 10-9-1

Submitted to:

Northern Indiana Public Service Company LLC
Bailly Generating Station
Chesterton, Indiana

Submitted by:

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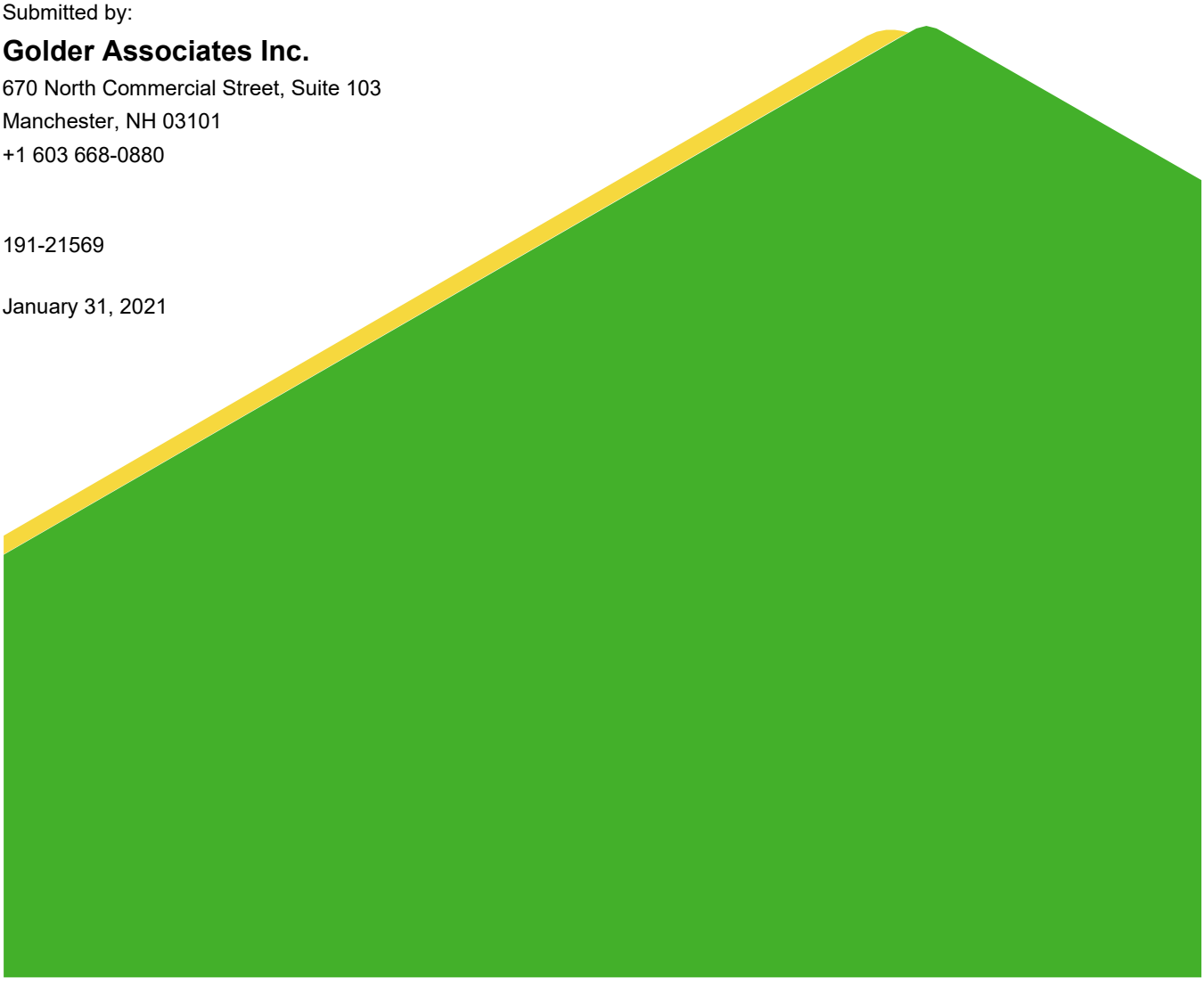

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1.0 INTRODUCTION

On behalf of Northern Indiana Public Service Company LLC (NIPSCO LLC), Golder Associates Inc. (Golder) prepared this 2020 Annual Groundwater Monitoring and Corrective Action Report (2020 Annual Report) for the Bailly Generating Station (BGS, Bailly) Primary 1 and Primary 2 (together, the CCR Unit) located at 246 Bailly Station Road in Chesterton, Porter County, Indiana (Latitude 41° 38' 40" N and Longitude 87° 05' 20" W, see Figure 1). Primary 1 is an approximately six-acre impoundment and Primary 2 is an approximately eight-acre impoundment. Both are incised surface impoundments which are lined with a chlorosulfonated polyethylene "Hypalon" membrane. Primary 1 and Primary 2 are separated by a narrow berm, located adjacent to one another as shown in Figure 2. Golder prepared the 2020 Annual Report for the CCR Unit in accordance with 40 Code of Federal Regulations (CFR) Parts 257 and 261, "Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule" (CCR Rule), as amended, and corresponding regulations under 329 Indiana Administrative Code (IAC) 10-9-1.

In 2017 and 2018, Golder prepared Annual Reports for BGS Primary 1 and Primary 2 as separate CCR Units. In 2019, NIPSCO LLC and Golder decided to monitor Primary 1 and Primary 2 as one CCR Unit due to the proximity of the impoundments to one another and observed changes in the general groundwater flow direction as compared to historical flow patterns. The CCR Unit is currently in Assessment Monitoring pursuant to 40 CFR §257.95. Routine monitoring activities performed during the reporting period include inspection of wells for integrity and security, measurement of groundwater levels prior to sample collection to assess groundwater flow direction, and collection of samples for laboratory analysis.

In conformance with the applicable requirements of 40 CFR §257.90(e)(1) through (5) and corresponding State of Indiana requirements, the 2020 Annual Report:

- Documents the status of the groundwater monitoring and corrective action program
- Provides figures showing the CCR Unit and monitoring well locations
- Summarizes key CCR Rule groundwater activities completed during calendar year 2020
- Includes CCR Rule groundwater monitoring data obtained in calendar year 2020
- Describes any problems encountered during the monitoring activities
- Discusses actions taken to resolve the problems, if applicable
- Projects key activities for the upcoming year

2.0 GROUNDWATER MONITORING AND CORRECTIVE ACTION PROGRAM OVERVIEW OF CURRENT STATUS

Starting in 2016 following the installation of a groundwater monitoring system and throughout calendar year 2017, Golder collected background groundwater samples and performed Detection Monitoring at Primary 1 and Primary 2 (as separate CCR Units) pursuant to the requirements of 40 CFR §257.94. Due to the identification of statistically significant increases (SSIs), NIPSCO LLC established an Assessment Monitoring program in March and April 2018 pursuant to the requirements of 40 CFR §257.95. In 2018, Golder performed the first and second Assessment Monitoring sampling events at Primary 1 and Primary 2. Following the first Assessment Monitoring sampling event, including verification sampling, NIPSCO LLC posted a notification in the publicly-accessible website that there were detections of 40 CFR Part 257 Appendix IV parameters at concentrations above

groundwater protection standards (GWPS) at both Primary 1 and Primary 2. Consequently, NIPSCO LLC initiated the assessment of corrective measures (ACM) process for Primary 1 and Primary 2 in December 2018. In 2019, Golder completed the third and fourth Assessment Monitoring events, and in 2020, Golder completed the fifth and sixth Assessment Monitoring events. Primary 1 and Primary 2 began and ended the current annual reporting period in Assessment Monitoring pursuant to §257.95. The statistically significant levels (SSLs) of Appendix IV constituents identified in 2020 include thallium at monitoring wells GAMW-07 and GAMW-10, and arsenic and lithium at monitoring well GAMW-16. NIPSCO LLC completed the assessment of corrective measures and prepared the ACM Report in May 2019 and is continuing to evaluate the feasibility and design of potential groundwater remedial alternatives in accordance with the provisions of 40 CFR §259.97(a). A remedy has not yet been selected; therefore, no remediation activities were performed in 2020. At least 30 days prior to the selection of remedy, NIPSCO LLC will schedule a public meeting to present the proposed remedial approach for public comment.

2.1 Key Actions Completed - 2020

NIPSCO LLC completed the following key actions relative to CCR Rule groundwater monitoring at Primary 1 and Primary 2 during calendar year 2020:

- Preparation of the 2019 Groundwater Monitoring and Corrective Action Annual Report in January 2020 (2019 Annual Report, 40 CFR §257.90(e))
- Evaluation of the results of the fourth Assessment Monitoring event in February 2020 (40 CFR §257.95)
- Notification that constituents in 40 CFR Part 257 Appendix IV exceeded the GWPS in March 2020 (40 CFR §257.95(g))
- Performance of the fifth Assessment Monitoring event in April 2020 (40 CFR §257.95)
- Preparation of the second semi-annual Selection of Remedy Progress Report in April 2020 (40 CFR §257.97)
- Evaluation of the results of the fifth Assessment Monitoring event in August 2020 (40 CFR §257.95)
- Notification that constituents in 40 CFR Part 257 Appendix IV exceeded the GWPS in September 2020 (40 CFR §257.95(g))
- Preparation of the third semi-annual Selection of Remedy Progress Report in October 2020 (40 CFR §257.97)
- Performance of the sixth Assessment Monitoring event in November 2020 (40 CFR §257.95)

2.2 Monitoring System Modification

The groundwater monitoring system did not require any modification in 2020 (see Figure 2). Attached Table 1 provides a summary of the well rationale/purpose and date of installation. An overview of the groundwater monitoring network is provided in the embedded table below.

Background Monitoring Wells	Downgradient Monitoring Wells
GAMW-01, GAMW-01B	MW-112, GAMW-06, GAMW-07, GAMW-08, GAMW-08B, GAMW-10, GAMW-11, GAMW-11B, GAMW-11C, GAMW-16, GAMW-17, GAMW-17B, GAMW-18

2.3 Background Monitoring (2016 to 2017)

Per the requirements of 40 CFR §257.94, Golder collected eight independent background groundwater samples from each background and downgradient well at Primary 1 and Primary 2 between July 2016 and August 2017. Golder used the results of the background monitoring phase to develop appropriate, statistically valid background values for each constituent/monitoring well. Golder submitted the samples to a contract laboratory, in accordance with chain of custody and quality assurance/quality control procedures, for analysis of 40 CFR Part 257 Appendix III and Appendix IV constituents. In addition, Golder personnel measured field water quality parameters including specific conductance, temperature, dissolved oxygen, turbidity, oxidation-reduction potential, and pH. The background data sets for Primary 1 and Primary 2 are included in the 2017 CCR Annual Groundwater Monitoring and Corrective Action Reports, dated January 31, 2018 (2017 Annual Reports, Golder 2018).

2.4 Detection Monitoring

Golder performed the first Detection Monitoring events at both Primary 1 and Primary 2 in October 2017, followed by a statistical evaluation and data analysis in January 2018. Golder collected groundwater samples from Primary 1 and Primary 2 background and downgradient monitoring wells for analysis of Appendix III constituents per 40 CFR §257.94 and included the results in the 2017 Annual Reports. Following receipt and validation of laboratory results, Golder evaluated the results of the first Detection Monitoring sampling events to compare the concentration of Appendix III constituents relative to facility background concentrations. Using Sanitas™ software, Golder pooled the background data to calculate prediction limits and compared the October 2017 results to the calculated prediction limits to determine SSIs. Due to the identification of SSIs, NIPSCO LLC established an Assessment Monitoring program in April 2018 at both Primary 1 and Primary 2.

2.5 Assessment Monitoring

Golder performed the first Assessment Monitoring events (i.e., Assessment and Verification sampling) at Primary 1 and Primary 2 in March and April 2018, followed by a statistical evaluation and data analysis in August 2018. In March 2018, groundwater samples were collected at all background and downgradient monitoring well locations and analyzed for Appendix IV constituents per 40 CFR §257.95. In April 2018, groundwater samples were collected at the downgradient monitoring well locations and analyzed for Appendix III and detected Appendix IV constituents per 40 CFR §257.95. In September 2018, Golder developed GWPS against which to compare the Assessment Monitoring results. Following receipt and validation of laboratory results, Golder evaluated the Appendix IV constituent results relative to CCR Unit-specific GWPS (Table 4). At the time of the statistical evaluation the GWPS was the higher value of either the Maximum Contaminant Level (MCL) or the CCR Unit-specific background concentration for each analyte calculated using a tolerance/prediction limit procedure in accordance with 40 CFR §257.95(h)(2). Results from the downgradient monitoring wells were evaluated by comparing the lower confidence limit (LCL) to the CCR Unit-specific GWPS for each 40 CFR Part 257 Appendix IV analyte at each well. If the LCL exceeds the GWPS, there is statistical evidence of an SSL. Golder identified an SSL for thallium at well GAMW-10 for Primary 1 and SSLs for arsenic and lithium in well GAMW-16 and thallium in well GAMW-07 for Primary 2. NIPSCO LLC initiated the assessment of corrective measures in December 2018.

Golder performed the second Assessment Monitoring events at Primary 1 and Primary 2 in October 2018 by collecting groundwater samples from each background and downgradient monitoring well for analysis of Appendix III and detected Appendix IV constituents per 40 CFR §257.95. Golder performed the statistical evaluation of the analytical results of the second Assessment Monitoring sampling events in January 2019. The results confirmed the SSL for thallium in well GAMW-10 and identified an SSL for thallium in well GAMW-09 for Primary 1. The results confirmed the SSLs for arsenic and lithium at well GAMW-16 and for thallium at GAMW-07 for Primary 2. The results from the first and second Assessment Monitoring events for both Primary 1 and Primary 2 are included in the 2018 Annual Groundwater Monitoring and Corrective Action Reports, dated January 31, 2019 (2018 Annual Reports, Golder 2019) for each CCR Unit.

Golder performed the third Assessment Monitoring events at Primary 1 and Primary 2 in April 2019 by collecting groundwater samples from each background and downgradient monitoring well for analysis of Appendix III and Appendix IV constituents per 40 CFR §257.95. Golder performed the statistical evaluation of the analytical results of the third Assessment Monitoring sampling events in August 2019. The results confirmed the SSL for thallium at well GAMW-10 for Primary 1. The results confirmed the SSLs for arsenic and lithium at well GAMW-16 and for thallium at GAMW-07 for Primary 2.

Golder performed the fourth Assessment Monitoring event in October 2019 (the first Assessment Monitoring event for the combined Primary 1 and Primary 2 CCR Unit) by collecting groundwater samples from each background and downgradient monitoring well for analysis of Appendix III and detected Appendix IV constituents per 40 CFR §257.95. Golder performed the statistical evaluation of the analytical results of the fourth Assessment Monitoring sampling event in February 2020. The results confirmed the SSLs for thallium at wells GAMW-07 and GAMW-10 and for arsenic and lithium at well GAMW-16. The results from the third and fourth Assessment Monitoring events are included in the 2019 Annual Groundwater Monitoring and Corrective Action Report, dated January 31, 2020 (2019 Annual Report, Golder 2020).

Golder performed the fifth Assessment Monitoring event in April 2020 by collecting groundwater samples from each background and downgradient monitoring well for analysis of Appendix III and Appendix IV constituents per 40 CFR §257.95. Golder performed the statistical evaluation of the analytical results of the fifth Assessment Monitoring sampling event in August 2020. The results confirmed the SSLs for thallium at wells GAMW-07 and GAMW-10 and for arsenic and lithium at well GAMW-16.

Golder performed the sixth Assessment Monitoring event in November 2020 by collecting groundwater samples from each background and downgradient monitoring well for analysis of Appendix III and detected Appendix IV constituents per 40 CFR §257.95. Golder will perform the statistical analysis of the results of the sixth Assessment Monitoring sampling event in February 2021.

The sampling dates, number of groundwater samples collected from each background and downgradient well, and the purpose of sampling are provided in Table 2. The analytical results are presented in Table 3.

2.6 Corrective Action

NIPSCO LLC is evaluating the feasibility and design of the potential groundwater remedial alternatives presented in the Assessment of Corrective Measures (ACM) report (Golder, 2019). As discussed in the ACM, NIPSCO LLC plans to close these CCR Units by removal in accordance with 40 CFR §257.102(c). In 2019, Golder identified changes in the groundwater flow direction as result of the shutdown of coal-fired generating activities and consequent modification in operation of the impoundments. As a result, the groundwater monitoring network has been updated to adequately monitor groundwater quality immediately downgradient of Primary 1 and Primary 2

and to allow for the collection and evaluation of additional information essential to the evaluation of the potential Corrective Measures alternatives.

In 2020, Golder evaluated the analytical data collected during the September 2019 drilling and new well installation event, re-evaluated the groundwater flow direction based on water levels from the updated monitoring well network, and sampled and evaluated groundwater analytical data collected from the updated monitoring well network. In 2021, Golder will have collected enough samples to determine if SSLs exist in any of the new monitoring wells installed in September 2019. Golder will continue to sample and evaluate data from the updated monitoring well network consistent with 40 CFR §257.95. The additional data will be presented in an addendum to the ACM. Additionally, Golder will continue to perform an engineering review of the five potential Corrective Measures presented in the ACM, by placing an emphasis on monitoring on-Site plume stability, identifying critical data gaps, understanding and reacting to impacts of newly gathered information on previous assumptions and/or conclusions, identifying and researching applicability of emerging technologies, and monitoring changing groundwater and operational conditions, if any, and future plans for the Site and their impacts on the remedy process.

2.7 Statistical Evaluation

Subsequent to each monitoring event, Golder assessed the analytical data for outliers, anomalies, and trends that might be an indication of a sampling or analytical error. Outliers and anomalies are generally defined as inconsistently large or small values that can occur as a result of sampling, laboratory, transportation, or transcription errors, or even by chance alone. Significant trends may indicate natural geochemical variability, a source of systematic error, influence of an upgradient/off-site source, or an actual occurrence of CCR Unit influence upon groundwater quality. Appropriate statistical methods are used to remove outliers from the database and manage trends with detrending routines, prior to the calculation of statistical limits. To assess the data for outliers, anomalies, and trends, Golder assessed the data using time vs. concentration graphs, and statistical routines included in the Sanitas™ statistical analysis software package. Golder has not identified any outliers since the 2019 Annual Report.

Golder evaluated the background data set for trends using Sanitas™ software. Golder will continue to monitor trends and apply detrending routines, if applicable, before using these data to calculate GWPS. Golder identified the following 40 CFR Part 257 Appendix IV parameter trends in background monitoring wells:

- Arsenic concentrations detected in groundwater samples collected from GAMW-01 show a decreasing trend; all results are below the MCL, therefore, the GWPS is equal to the MCL. No detrending routines are required.
- Beryllium concentrations detected in groundwater samples collected from GAMW-01 show a decreasing trend; all results are below the MCL, therefore, the GWPS is equal to the MCL. No detrending routines are required.
- Cobalt concentrations detected in groundwater samples collected from GAMW-01 show a decreasing trend; all results are below the health-based standard, therefore, the GWPS is equal to the health-based standard. No detrending routines are required.

2.8 Problems Encountered and Follow-Up Corrective Actions

No problems were encountered in 2020.

3.0 KEY ACTIVITIES PROJECTED FOR 2021

During calendar year 2021, NIPSCO LLC anticipates conducting the following key CCR groundwater monitoring activities for Primary 1 and Primary 2:

- Prepare and submit the appropriate notifications according to the CCR Rule;
- Continue semi-annual Assessment Monitoring groundwater sampling per CCR Rule requirements;
- Prepare and submit a closure application to the Indiana Department of Environmental Management (IDEM);
- Continue to evaluate potential remedial alternatives and prepare semi-annual reports describing the progress in selecting and designing the remedy; and
- Inspect and maintain the monitoring system including wells, pumps, and equipment.

4.0 REFERENCES

Golder Associates, “2017 Annual Groundwater Monitoring and Corrective Action Report- Primary 1 NIPSCO Bailly Generating Station”, January 31, 2018.

Golder Associates, “2017 Annual Groundwater Monitoring and Corrective Action Report- Primary 2 NIPSCO Bailly Generating Station”, January 31, 2018.

Golder Associates, “2018 Annual Groundwater Monitoring and Corrective Action Report- Primary 1 NIPSCO Bailly Generating Station”, January 31, 2019.

Golder Associates, “2018 Annual Groundwater Monitoring and Corrective Action Report- Primary 2 NIPSCO Bailly Generating Station”, January 31, 2019.

Golder Associates, “2019 Annual Groundwater Monitoring and Corrective Action Report- Primary 1 and Primary 2 NIPSCO LLC Bailly Generating Station”, January 31, 2020.

Golder Associates, “CCR Assessment of Corrective Measures,” May 1, 2019.

Golder Associates, “NIPSCO Bailly Generating Station, CCR Units Primary 1, Primary 2, and Secondary 1 Corrective Measures Selection of Remedy, Semi-Annual Progress Report #19-01” October 28, 2019.

Golder Associates, “NIPSCO Bailly Generating Station, CCR Units Primary 1, Primary 2, and Secondary 1 Corrective Measures Selection of Remedy, Semi-Annual Progress Report #20-01” April 24, 2020.

Golder Associates, “NIPSCO Bailly Generating Station, CCR Units Primary 1, Primary 2, and Secondary 1 Corrective Measures Selection of Remedy, Semi-Annual Progress Report #20-02” October 21, 2020.

TABLES

Table 1 Monitoring Well Network
CCR Unit Bailly Primary 1 and Primary 2
NIPSCO LLC Bailly Generating Station
Chesterton, Indiana

CCR Unit	Well Purpose	Monitoring Well ID	Installation Date (If Applicable)	Decommission Date (If Applicable)	Basis For Action
Primary 1 and Primary 2	Background Monitoring Well	GAMW-01	6/6/2016	-	Installed for Groundwater Quality Monitoring[1]
		GAMW-01B	9/14/2019	-	Installed to provide additional groundwater quality data
	Downgradient Monitoring Well	GAMW-05	6/6/2016	-	Installed for Groundwater Quality Monitoring, removed from the monitoring well network in September 2019 [1,4]
		GAMW-06	6/6/2016	-	Installed for Groundwater Quality Monitoring[1]
		GAMW-07	6/7/2016	-	
		GAMW-08	6/7/2016	-	Installed for Groundwater Quality Monitoring, considered part of the background monitoring well network prior to September 2019 [1,3]
		GAMW-08B	9/9/2019	-	Installed to characterize the nature and extent of a potential release[2]
		GAMW-09	6/13/2016	-	Installed for Groundwater Quality Monitoring, removed from the monitoring well network in September 2019 [1,4]
		GAMW-10	6/8/2017	-	Installed for Groundwater Quality Monitoring[1]
		GAMW-11	6/7/2016	-	Installed for Groundwater Quality Monitoring, considered part of the background monitoring well network prior to September 2019 [1,3]
		GAMW-11B	6/7/2016	-	Installed to characterize the nature and extent of a potential release[2]
		GAMW-11C	9/13/2019	-	
		GAMW-15	2/2/2017	-	Installed for Groundwater Quality Monitoring, removed from the monitoring well network in September 2019 [1,4]
		GAMW-16	2/2/2017	-	Installed for Groundwater Quality Monitoring[1]
		GAMW-17	9/12/2019	-	Installed to characterize the nature and extent of a potential release[2]
		GAMW-17B	9/12/2019	-	
		GAMW-18	9/11/2019	-	
		MW-112	-	-	Installed for Groundwater Quality Monitoring[1]

1) Per 40 CFR §257.93, Golder collected eight rounds of background data prior to October 17, 2017.

2) Per 40 CFR §257.95(g)(1)(i) Rule requirements, Golder collected additional data to further characterize the nature and extent of potential groundwater impacts.

3) Prior to September 2019, monitoring wells GAMW-08 and GAMW-11 were considered part of the background monitoring well network. Due to changes in groundwater flow direction, GAMW-08 and GAMW-11 are now considered part of the downgradient monitoring well network.

4) Due to changes in groundwater flow direction, monitoring wells GAMW-05, GAMW-09, and GAMW-15 are no longer considered part of the monitoring well network for Primary 1 and Primary 2.

Prepared by: DFSC
Checked by: KMC
Reviewed by: MAH

Table 2: Summary of Sampling Events
CCR Unit Bailly Primary 1 and Primary 2
NIPSCO LLC Bailly Generating Station
Chesterton, Indiana

Well Purpose	Monitoring Well ID	Sample Event #14	Sample Event #15	Total Number of Samples
Purpose of Sample		Annual Assessment Monitoring	Semi-Annual Assessment Monitoring	
Sample Parameters		Appendix III and Appendix IV	Appendix III and Detected Appendix IV	
Background Monitoring Well	GAMW-01	4/9/2020	11/2/2020	2
	GAMW-01B	4/9/2020	11/2/2020	2
Downgradient Monitoring Well	GAMW-06	4/10/2020	11/3/2020	2
	GAMW-07	4/10/2020	11/3/2020	2
	GAMW-08	4/10/2020	11/6/2020	2
	GAMW-08B	4/10/2020	11/6/2020	2
	GAMW-10	4/13/2020	11/3/2020	2
	GAMW-11	4/13/2020	11/5/2020	2
	GAMW-11B	4/13/2020	11/5/2020	2
	GAMW-11C	4/13/2020	11/5/2020	2
	GAMW-16	4/14/2020	11/3/2020	2
	GAMW-17	4/15/2020	11/5/2020	2
	GAMW-17B	4/15/2020	11/5/2020	2
	GAMW-18	4/15/2020	11/6/2020	2
	MW-112	4/15/2020	11/4/2020	2
Total Number of Samples		15	15	30

Notes:

Sample counts do not include QA/QC samples.

(1) Sample events #1-13 were completed prior to 2020. The purpose, sample parameters, and sample dates are included in the 2017, 2018, and 2019 Annual Reports.

(2) Semi-annual assessment monitoring parameters did not include radium.

(3) Sample events #14 and 15 correspond to the fifth and sixth Assessment Monitoring events, respectively.

Prepared by: DFSC
Checked by: KMC
Reviewed by: MAH

Table 3: Analytical Data
CCR Unit Bailly Primary 1 and Primary 2
NIPSCO LLC Bailly Generating Station
Chesterton, Indiana

Location		GAMW-01		GAMW-01B		GAMW-06		GAMW-07			GAMW-08		GAMW-08B		GAMW-10	
Sample Date		2020-04-09	2020-11-02	2020-04-09	2020-11-02	2020-04-10	2020-11-03	2020-04-10		2020-11-03	2020-04-10	2020-11-06	2020-04-10	2020-11-06	2020-04-13	2020-11-03
Sample Type		N	N	N	N	N	N	FD	N	N	N	N	N	N	N	N
Chemical Name	Unit															
CCR Appendix III																
Boron	mg/L	0.18	0.21	0.26	0.25	0.11	0.12	0.15	0.15	0.13	0.1 U	0.1 U	0.3	0.28	0.32	0.29
Calcium	mg/L	89.6	97.7	93.4	96.6	67	72.4	67.7	68.7	52.8	58.1	69.6	69.1	84.2	60.1	60.6
Chloride	mg/L	3.5	2.5	12.2	5.8	0.94	0.97	1.5	1.4	1.1	2.8	1.4	9.2	9.3	1.7	1.2
Fluoride	mg/L	0.39	0.29	2.4	2.3	1.3	1.3	2.6	2.7	2.8	1	0.86	1	1.1	2.2	2.4
pH	SU	7.19	6.61	7.25	6.72	7.19	6.95		7.05	6.54	7.86	8.31	7.21	6.99	7.65	7.45
Sulfate	mg/L	42.6	38.5	48.6	43.3	31.3	27.6	66.6	69.2	44.6	16.5	15.8	112	104	67.7	83.6
Total Dissolved Solids	mg/L	325	353	326	338	220	247	243	235	197	187	242	321	360	239	255
CCR Appendix IV																
Antimony	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001	0.0012	0.001 U	0.001 U	0.001 U	0.0012	0.0012	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	mg/L	0.001 U	0.001 U	0.001 U	0.0011	0.0014	0.0014	0.015	0.015	0.042	0.0053	0.0073	0.0034	0.0021	0.001 U	0.001 U
Barium	mg/L	0.026	0.03	0.021	0.021	0.021	0.023	0.012	0.012	0.012	0.019	0.022	0.018	0.019	0.025	0.022
Beryllium	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Cadmium	mg/L	0.00029	0.00034	0.00052	0.00074	0.00054	0.00044	0.00036	0.00037	0.00032	0.0015	0.0016	0.0019	0.0027	0.0002 U	0.00024
Chromium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Cobalt	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0013	0.001 U	0.001 U
Fluoride	mg/L	0.39	0.29	2.4	2.3	1.3	1.3	2.6	2.7	2.8	1	0.86	1	1.1	2.2	2.4
Lead	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	mg/L	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.026	0.029	0.032	0.012	0.016	0.016	0.019	0.0091	0.0084
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	mg/L	0.035	0.032	0.025	0.03	0.019	0.019	0.013	0.013	0.0084	0.011	0.012	0.13	0.15	0.038	0.027
Radium, Total	pCi/L	1.39 U		1.1 U		1.27 U		1.52 U	1.11 U		1.51 U		1.48 U		1.82 U	
Selenium	mg/L	0.023	0.01	0.016	0.018	0.0063	0.0054	0.0014	0.0015	0.0017	0.0033	0.0032	0.005	0.0045	0.0088	0.0092
Thallium	mg/L	0.0022	0.0026	0.0033	0.0032	0.0034	0.0042	0.01	0.01	0.0096	0.0013	0.0017	0.01	0.011	0.0045	0.0044
Field Parameters																
Dissolved Oxygen	mg/L	5.2	3.82	0.2	0.69	1.93	0.88		0.19	0.86	9.37	8.41	0.12	0.43	7.48	7.56
Oxidation-Reduction Potential	millivolts	184.9	273.9	128.9	248.3	98.7	117.5		20.2	76	147.7	229.4	22.7	177	228.9	257.8
pH	SU	7.19	6.61	7.25	6.72	7.19	6.95		7.05	6.54	7.86	8.31	7.21	6.99	7.65	7.45
Specific Conductance	uS/cm	584	608	593	611	443	450.2		457	348.1	370	458.1	571	649	471	452.4
Temperature	deg C	10.8	15.1	12.4	13.7	11.2	15.1		12.1	16.7	11.8	15.2	12.9	14.2	12.6	15.7
Turbidity	NTU	2.12	1.09	1.95	1.01	4.79	3.46		3.96	4.27	1.32	1.48	2.84	4.72	2.54	1.94

Note:
mg/L = milligrams per liter
uS/cm = micro Siemens per centimeter
deg C = degrees Celsius
NTU = Nephelometric Turbidity Units
pCi/L= picocuries per liter
SU = Standard Units

"U" = Indicates the result was not detected above the method detection limit (MDL) for the sample; the quantitation limit (RL) is provided.

Table 3: Analytical Data
CCR Unit Bailly Primary 1 and Primary 2
NIPSCO LLC Bailly Generating Station
Chesterton, Indiana

	Location	GAMW-11		GAMW-11B				GAMW-11C		GAMW-16		GAMW-17		GAMW-17B	
	Sample Date	2020-04-13	2020-11-05	2020-04-13		2020-11-05		2020-04-13	2020-11-05	2020-04-14	2020-11-03	2020-04-15	2020-11-05	2020-04-15	2020-11-05
	Sample Type	N	N	FD	N	FD	N	N	N	N	N	N	N	N	N
Chemical Name	Unit														
CCR Appendix III															
Boron	mg/L	0.14	0.12	0.69	0.7	0.72	0.71	0.6	0.5	0.13	0.17	1.7	1.7	0.52	0.57
Calcium	mg/L	77.4	78.7	113	113	114	116	79.9	84.4	70.7	72.8	150	147	86	86.9
Chloride	mg/L	2.6	1.9	22.6	22.8	25.1	25.2	17.8	14.4	1.2	0.98	12.6	11.8	17.9	17.2
Fluoride	mg/L	1.9	1.8	0.073	0.078	0.05 U	0.05 U	0.73	0.66	1.6	1.7	1.4	1.4	0.57	0.55
pH	SU	7.6	7.89		7.4		7.3	7.42	7.32	7.96	8.27	7.24	6.96	7.54	7.56
Sulfate	mg/L	45.5	47.6	97.5	97.6	90.7	90.3	94.4	99.6	46.2	66.1	314	342	176	184
Total Dissolved Solids	mg/L	264	262	448	448	455	454	340	337	246	269	641	616	407	384
CCR Appendix IV															
Antimony	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0011	0.0012	0.001 U	0.001 U	0.001 U	0.001 U
Arsenic	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0028	0.001 U	0.013	0.013	0.049	0.077	0.0011	0.001 U
Barium	mg/L	0.024	0.023	0.15	0.15	0.15	0.15	0.042	0.039	0.0059	0.0063	0.063	0.082	0.025	0.026
Beryllium	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Cadmium	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Chromium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Cobalt	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Fluoride	mg/L	1.9	1.8	0.073	0.078	0.05 U	0.05 U	0.73	0.66	1.6	1.7	1.4	1.4	0.57	0.55
Lead	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	mg/L	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.008 U	0.062	0.07	0.019	0.016	0.013	0.014
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	mg/L	0.021	0.021	0.014	0.014	0.015	0.015	0.013	0.016	0.042	0.019	0.66	0.72	0.003	0.0026
Radium, Total	pCi/L	1.31 U		1.42 U	2.2 U			1.78 U		1.68 U		2.05 U		1.8 U	
Selenium	mg/L	0.025	0.024	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0033	0.007	0.0059	0.29	0.16	0.001 U	0.001 U
Thallium	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.0015	0.0016	0.0018	0.0025	0.001 U	0.001 U
Field Parameters															
Dissolved Oxygen	mg/L	8.55	8.35		0.22		0.4	0.35	1.77	6.65	5.82	0.32	0.44	0.12	0.66
Oxidation-Reduction Potential	millivolts	224	189.4		-109.1		-160.7	-43.3	159.2	144.5	239.4	30.1	11.8	-111.4	-167.8
pH	SU	7.6	7.89		7.4		7.3	7.42	7.32	7.96	8.27	7.24	6.96	7.54	7.56
Specific Conductance	uS/cm	515	521		781		855	612	658	439	463.1	936	965	686	713
Temperature	deg C	11.1	14.7		12.3		13.8	12.7	13.8	12.3	15.8	11.5	14.8	12.6	14.3
Turbidity	NTU	2.31	2.45		3.21		1.61	2.41	1.71	2.06	4.16	4.96	3.79	4.96	3.81

Note:
mg/L = milligrams per liter
uS/cm = micro Siemens per centimeter
deg C = degrees Celsius
NTU = Nephelometric Turbidity Units
pCi/L= picocuries per liter
SU = Standard Units

"U" = Indicates the result was not detected above the method detection limit (MDL) for the sample; the quantitation limit (RL) is provided.

Table 3: Analytical Data
CCR Unit Bailly Primary 1 and Primary 2
NIPSCO LLC Bailly Generating Station
Chesterton, Indiana

	Location	GAMW-18		MW-112		
	Sample Date	2020-04-15	2020-11-06	2020-04-15	2020-11-04	
	Sample Type	N	N	N	FD	N
Chemical Name	Unit					
CCR Appendix III						
Boron	mg/L	0.16	0.15	0.1 U	0.1	0.1
Calcium	mg/L	83.8	83.4	77.4	90.7	90.9
Chloride	mg/L	2.6	2	14.9	35.8	37.2
Fluoride	mg/L	2.1	2.3	0.95	1.1	1.1
pH	SU	7.77	8.28	7.4		7.06
Sulfate	mg/L	29.9	29.2	38.7	44.3	43.7
Total Dissolved Solids	mg/L	294	271	319	364	364
CCR Appendix IV						
Antimony	mg/L	0.0015	0.0015	0.001 U	0.001 U	0.001 U
Arsenic	mg/L	0.001 U	0.0011	0.001 U	0.0011	0.001 U
Barium	mg/L	0.025	0.023	0.024	0.036	0.037
Beryllium	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Cadmium	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Chromium	mg/L	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Cobalt	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Fluoride	mg/L	2.1	2.3	0.95	1.1	1.1
Lead	mg/L	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Lithium	mg/L	0.008 U	0.0094	0.008 U	0.0089	0.011
Mercury	mg/L	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum	mg/L	0.021	0.017	0.023	0.045	0.044
Radium, Total	pCi/L	1.66 U		1.56 U		
Selenium	mg/L	0.0082	0.0096	0.0079	0.0049	0.0053
Thallium	mg/L	0.0025	0.0026	0.001 U	0.001 U	0.001 U
Field Parameters						
Dissolved Oxygen	mg/L	6.68	6.88	3.56		0.94
Oxidation-Reduction Potential	millivolts	155.4	243.2	148.8		227.9
pH	SU	7.77	8.28	7.4		7.06
Specific Conductance	uS/cm	537	540	565		703
Temperature	deg C	11.2	14.6	12.2		16.2
Turbidity	NTU	2.2	1.08	2.41		1.89

Note:
mg/L = milligrams per liter
uS/cm = micro Siemens per centimeter
deg C = degrees Celsius
NTU = Nephelometric Turbidity Units
pCi/L= picocuries per liter
SU = Standard Units

"U" = Indicates the result was not detected above the method detection limit (MDL) for the sample; the quantitation limit (RL) is provided.

Prepared by: DFSC
Checked by: KMC
Reviewed by: MAH

Table 4: Groundwater Protection Standards
CCR Unit Bailly Primary 1 and Primary 2
NIPSCO LLC Bailly Generating Station
Chesterton, Indiana

Analyte	MCL (mg/L)	GWPS (mg/L)[2]	GWPS (mg/L)[3]
Antimony	0.006	0.006	0.006
Arsenic	0.01	0.01	0.01
Barium	2	2	2
Beryllium	0.004	0.004	0.004
Cadmium	0.005	0.005	0.005
Chromium	0.1	0.1	0.1
Cobalt[1]	0.006	0.006	0.006
Fluoride	4	4	4
Lead[1]	0.015	0.015	0.015
Lithium[1]	0.04	0.04	0.04
Mercury	0.002	0.002	0.002
Molybdenum[1]	0.1	0.1	0.1
Radium 226+228	5	5	5
Selenium	0.05	0.05	0.05
Thallium	0.002	0.0039	0.0043

Notes:

MCL= Environmental Protection Agency Maximum Contaminant Level

GWPS= Groundwater Protection Standard

mg/L= milligrams per liter

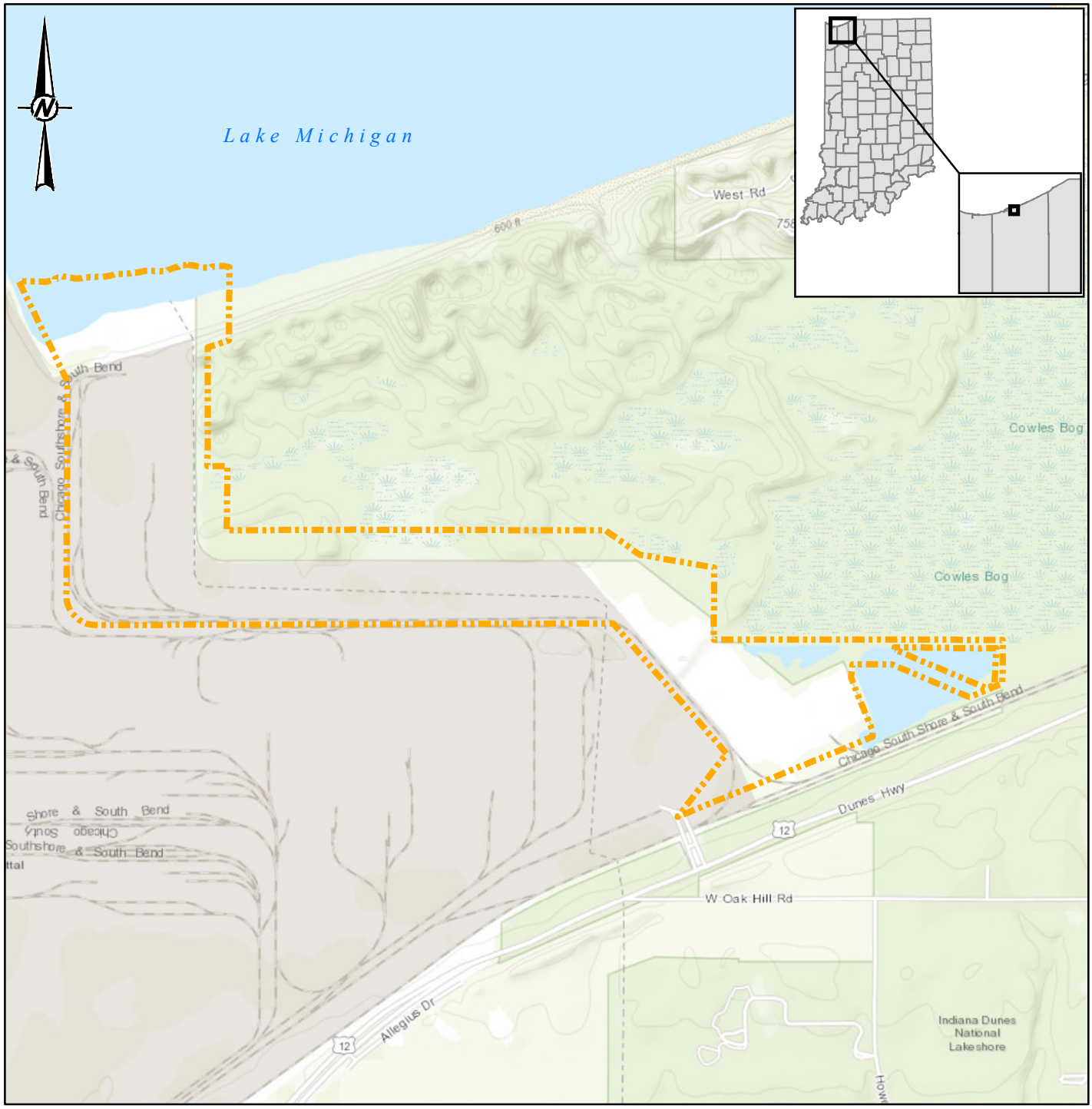
1) As of August 29, 2018, these four constituents have health-based standards that can be used when calculating the GWPS, these health-based standards are not MCLs but are provided in the MCL column.

2) GWPS calculated in September 2018.

3) GWPS calculated in February 2020.

Prepared by:	DFSC
Checked by:	KMC
Reviewed by:	MAH

FIGURES



LEGEND

Approximate Property Line

0 1,500 3,000

1 " = 1,500 feet Feet

REFERENCE(S)

SERVICE LAYER CREDITS: SOURCES: ESRI, HERE, GARMIN, INTERMAP, INCREMENT P CORP., GEBCO, USGS, FAO, NPS, NRCAN, GEOBASE, IGN, KADASTER NL, ORDNANCE SURVEY, ESRI JAPAN, METI, ESRI CHINA (HONG KONG), (C) OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY

CLIENT

NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC

PROJECT

BAILLY GENERATING STATION
CHESTERTON, INDIANA

TITLE

SITE LOCATION MAP

CONSULTANT

GOLDER

YYYY-MM-DD	1/4/2021
DESIGNED	DFS
PREPARED	SHL
REVIEWED	JSP
APPROVED	MAH

PROJECT NO.	CONTROL	REV.	FIGURE
19121569	A	0	1

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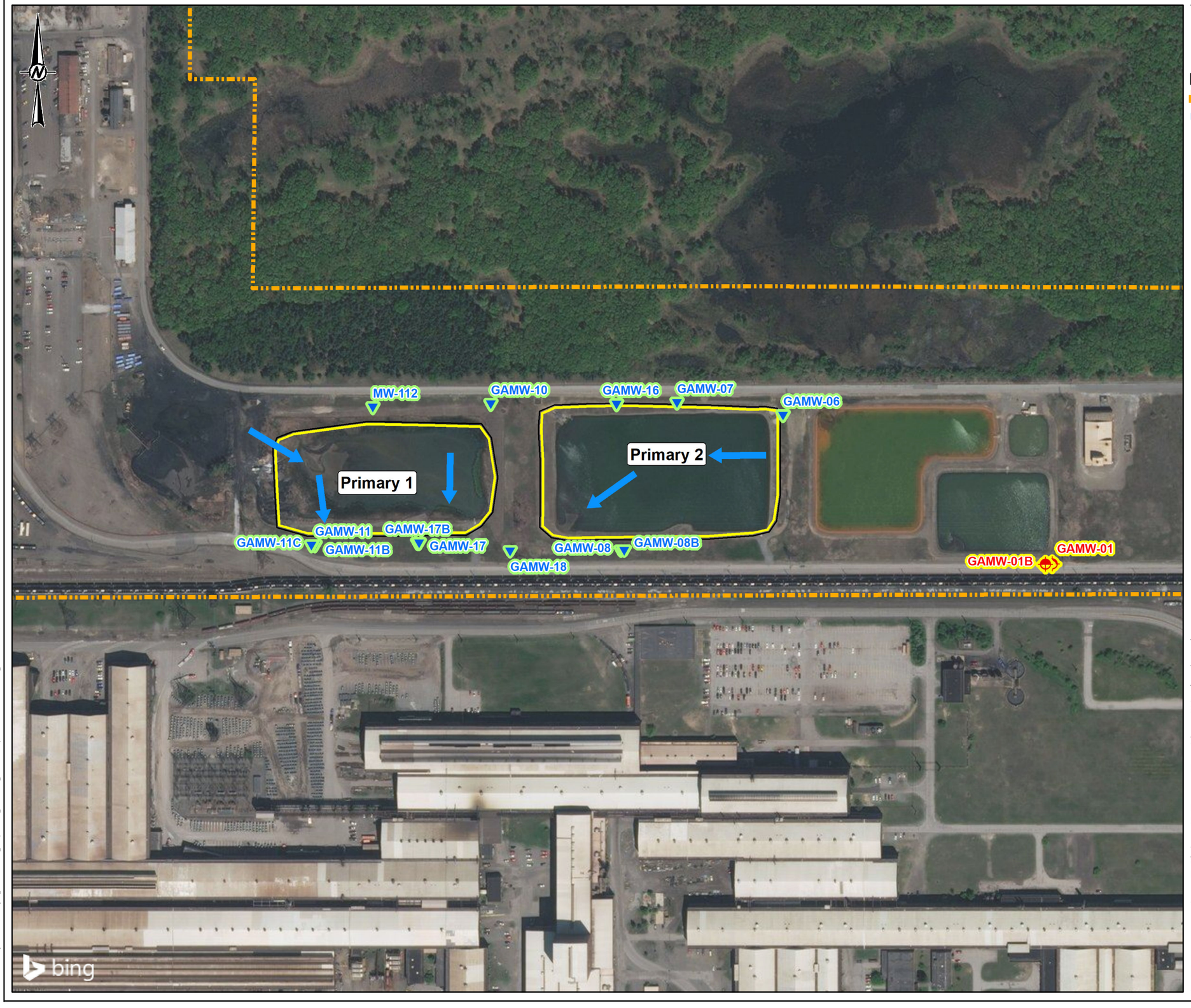

LEGEND

- Background Well Location
- Downgradient Well Location
- CCR Unit
- Approximate Property Line
- Current Post-Plant Closure Generalized Flow Direction

0 300 600

1 " = 300 feet

Feet

NOTE(S)

1. FLOW DIRECTION ON SITE IS VARIABLE AND FLAT. DOWNGRADIENT MONITORING WELLS ARE EITHER HISTORICALLY OR CURRENTLY DOWNGRADIENT OF THE CCR UNIT.

REFERENCE(S)

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CLIENT

NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC

PROJECT

BAILLY GENERATING STATION
CHESTERTON, INDIANA

TITLE

WELL LOCATION MAP PRIMARY 1 AND PRIMARY 2

CONSULTANT

GOLDER

YYYY-MM-DD	1/4/2021
DESIGNED	JSP
PREPARED	SHL
REVIEWED	JSP
APPROVED	MAH

PROJECT NO.	CONTROL	REV.	FIGURE
19121569	A	0	2

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0 1in

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