

# 2019 Annual Groundwater Monitoring and Corrective Action Report - Secondary 1

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:

 Golder Associates Inc.

 670 North Commercial Street, Suite 103

 Manchester, NH 03101

 +1 603 668-0880

 191-21569

 January 31, 2020

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# **1.0 INTRODUCTION**

On behalf of Northern Indiana Public Service Company LLC (NIPSCO LLC), Golder Associates Inc. (Golder) prepared this 2019 Annual Groundwater Monitoring and Corrective Action Report (2019 Annual Report) for the Bailly Generating Station (BGS, Bailly) Secondary 1 (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). Secondary 1 is an approximately three-acre, incised surface impoundment, as shown in Figure 2, that is lined with a chlorosulfonated polyethylene "Hypalon" membrane. Golder prepared the 2019 Annual Report 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.

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 2019 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 2019
- Includes CCR Rule groundwater monitoring data obtained in calendar year 2019
- Describes any problems encountered during the monitoring activities
- Discusses actions taken to resolve the problems, if applicable
- Provides key activities for the upcoming year

# 2.0 GROUNDWATER MONITORING AND CORRECTIVE MEASURES PROGRAM 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 the CCR Unit pursuant to the requirements of 40 CFR §257.94. In 2018, Golder performed the first and second Assessment Monitoring sampling events pursuant to the requirements of 40 CFR §257.95. 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). Consequently, NIPSCO LLC initiated the assessment of corrective measures process. In 2019, Golder completed the third and fourth Assessment Monitoring events. NIPSCO LLC completed the Assessment of Corrective Measures Report and is continuing to evaluate the feasibility and design of potential groundwater remedial alternatives in accordance with the provisions of 40 CFR §259.97.

# 2.1 Key Actions Completed - 2019

NIPSCO LLC completed the following key actions relative to CCR Rule groundwater monitoring at Secondary 1 during calendar year 2019:

- Evaluation of the results of the second Assessment Monitoring event in January 2019 (40 CFR §257.95)
- Completion and certification of the demonstration that an additional 60 days was needed to complete the Assessment of Corrective Measures in February 2019 (40 CFR §257.96(a), Appendix A)
- Notification that constituents in 40 CFR Part 257 Appendix IV exceeded the GWPS in February 2019 (40 CFR §257.95(g))
- Performance of the third Assessment Monitoring event in April 2019 (40 CFR §257.95)
- Completion of the Assessment of Corrective Measures Report in May 2019 (40 CFR §257.96)
- Evaluation of the results of the third Assessment Monitoring event in August 2019 (40 CFR §257.95)
- Notification that constituents in 40 CFR Part 257 Appendix IV exceeded the GWPS in September 2019 (40 CFR §257.95(g))
- Preparation of the first semi-annual Selection of Remedy Progress Report in October 2019 (40 CFR §257.97)
- Performance of the fourth Assessment Monitoring event in October 2019 (40 CFR §257.95)

# 2.2 Monitoring System Modifications

Consistent with the requirements of 40 CFR §257.90 and 257.91, NIPSCO LLC modified the groundwater monitoring well network to reflect the observed groundwater flow regime as indicated by groundwater elevations collected in 2019. The new flow regime reflects the cessation of BGS generating activities and the consequent modifications in the operation of the CCR Units. The groundwater monitoring system was modified in September 2019 to reflect the change in overall observed groundwater flow to southerly (versus formerly northerly) direction in the area of Secondary 1. Although the flow direction at Secondary 1 itself remains northwest, former background wells GAMW-08 and GAMW-11 (see Figure 2) may no longer represent upgradient conditions as they could potentially be impacted by groundwater flow beneath the CCR Units. Based on the interpretation of groundwater flow direction from water levels collected to date, GAMW-01 is representative of background conditions at all the CCR Units. New monitoring well GAMW-01B was installed adjacent to GAMW-01 in September 2019 to monitor background groundwater quality immediately above the confining clay layer (Figure 3).

Although statistically significant levels (SSLs) have been detected in monitoring wells immediately downgradient of Secondary 1, NIPSCO LLC is unable to install additional representative assessment monitoring wells to further characterize the nature and extent of the plume in accordance with 40 CFR §257.95(g) because non-regulated Secondary 2 is located downgradient of Secondary 1. The proximity and location of Secondary 2 prohibits the installation of additional monitoring wells capable of monitoring only groundwater influence from Secondary 1 further downgradient of the CCR Unit (see Figure 2). An overview of the groundwater monitoring network is provided in the embedded table below.

Background Monitoring Wells	Downgradient Monitoring Wells
GAMW-01, GAMW-01B*, GAMW-08**, GAMW-11**	GAMW-02, GAMW-03, GAMW-04

\*Well installed in 2019

\*\*Monitoring well was removed from the Secondary 1 monitoring well network in September 2019

Attached Table 1 provides a summary of the well rationale/purpose and date of installation. Golder installed, developed, and surveyed the wells in accordance with the CCR Groundwater Monitoring Program Implementation Manual prepared by Golder in October 2017.

# 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 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 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 set is included in the 2017 CCR Annual Groundwater Monitoring and Corrective Action Report, dated January 31, 2018 (2017 Annual Report).

# 2.4 Detection Monitoring

Golder performed the first Detection Monitoring event in October 2017, followed by a statistical evaluation and data analysis in January 2018. Golder collected groundwater samples from Secondary 1 background and downgradient monitoring wells for analysis of Appendix III constituents per 40 CFR §257.94 and included the results in the 2017 Annual Report. Following receipt and validation of laboratory results, Golder evaluated the results of the first Detection Monitoring sampling event 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 statistically significant increases (SSIs). Due to the identification of SSIs, NIPSCO LLC established an Assessment Monitoring program in April 2018.

# 2.5 Assessment Monitoring

Golder performed the first Assessment Monitoring event (i.e., Assessment and Verification sampling) in March and April 2018, followed by a statistical evaluation and data analysis in August 2018. Golder collected groundwater samples from each background and downgradient monitoring well for analysis of Appendix IV constituents per 40 CFR §257.95 in March 2018. 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. Golder developed GWPS to use as a comparison against the Assessment Monitoring results in September 2018. 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 Appendix IV analyte at each well. If the LCL exceeds the GWPS, there is statistical evidence of an SSL. Golder identified SSLs for thallium at well GAMW-03 and cadmium at GAMW-04 in September 2018 and initiated the assessment of corrective measures in December 2018.

Golder performed the second Assessment Monitoring event 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 event in January 2019. The results confirmed the SSLs for thallium at well GAMW-03 and cadmium at well GAMW-04.

Golder performed the third Assessment Monitoring event 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 event in August 2019. The results confirmed the SSLs for thallium at well GAMW-03 and cadmium at well GAMW-04.

Golder performed the fourth Assessment Monitoring event in October 2019 by collecting groundwater samples, from the updated monitoring well network described above in Section 2.2, for analysis of Appendix III and detected Appendix IV constituents per 40 CFR §257.95. Golder will perform the statistical evaluation of the analytical results of the fourth Assessment Monitoring sampling event in February 2020.

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 Measures

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 this CCR Unit by removal in accordance with 40 CFR §257.102(c). As described in Section 2.2, Golder has 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 the CCR Unit and to allow for the collection and evaluation of additional information essential to the evaluation of the potential Corrective Measures alternatives.

In 2020, Golder will evaluate the analytical data collected during the September 2019 drilling and new well installation event, re-evaluate the groundwater flow direction based on water levels from the updated monitoring well network, and sample and evaluate groundwater analytical data collected from the updated monitoring well network. 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 may 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<sup>™</sup> statistical analysis software package. Golder has not identified any additional outliers since the 2018 Annual Report.

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

- Fluoride concentrations detected in groundwater samples collected from well GAMW-11 show an increasing trend, however, all results are below the MCL, therefore, the GWPS is equal to the MCL. No detrending routines are required.
- Arsenic concentrations detected in groundwater samples collected from GAMW-08 show an increasing trend, however, all results are below the MCL, therefore, the GWPS is equal to the MCL. No detrending routines are required.
- Mercury concentrations detected in groundwater samples collected from GAMW-01, GAMW-08 and GAMW-11 show an increasing trend, however, mercury has never been detected above the laboratory reporting limit in these wells. No detrending routines are required.

# 2.8 **Problems Encountered and Follow-Up Corrective Actions**

No problems were encountered in 2019.

# 3.0 KEY ACTIVITIES PROJECTED FOR 2020

During calendar year 2020, NIPSCO LLC anticipates conducting the following key CCR Rule groundwater monitoring activities for Secondary 1:

- Prepare and submit the appropriate notifications according to the CCR Rule;
- Continue semi-annual Assessment Monitoring groundwater sampling per CCR Rule requirements;
- Continue to evaluate potential remedial alternatives and prepare semi-annual reports describing the
  progress in selecting and designing the remedy; and
- Inspect and maintain monitoring system including wells, pumps, and equipment.

# 4.0 **REFERENCES**

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

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.

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https://golderassociates.sharepoint.com/sites/nipscoccrgwmonitoring/shared documents/bgs/reports/annual report-2019/secondary 1/2019 annual report bailly secondary 1.docx

# Tables

### Table 1: Monitoring Well Network CCR Unit Bailly Secondary 1 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
		GAMW-01	6/6/2016	-	Installed for Groundwater Quality Monitoring <sup>(1)</sup>
	Background Monitoring Well	GAMW-01B	9/14/2019	-	Installed to provide additional groundwater quality data
Secondary 1		GAMW-08	6/16/2016	-	Installed for Groundwater Quality Monitoring, removed from the monitoring
		GAMW-11	6/7/2016	-	well network in September 2019 <sup>(1,3)</sup> .
	Downgradient	GAMW-02	6/6/2016	-	
	Monitoring Well	GAMW-03	6/6/2016	-	Installed for Groundwater Quality Monitoring*
	wormoning wei	GAMW-04	6/6/2016	-	

Notes:

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, these monitoring well have been removed from the monitoring well network for the Boiler Slag Pond.

Prepared by: AMH Checked by: DFS Reviewed by: MAH

# Table 2: Summary of Sampling EventsCCR Unit Bailly Secondary 1NIPSCO LLC Bailly Generating StationChesterton, Indiana

Well Purpose	Monitoring Well ID	Sample Event #12	mple Event #12 Sample Event #13		
Purpose o	f Sample	Annual Assessment Monitoring	Semi-Annual Assessment Monitoring	Total Number of Samples	
Sample Pa	rameters	Appendix III and Appendix IV	Appendix III and Appendix IV		
	GAMW-01	4/9/2019	10/24/2019	2	
Background	GAMW-01B	NI	10/24/2019	1	
Monitoring Well	GAMW-08	4/9/2019	(2)	1	
	GAMW-11	4/9/2019	(2)	1	
Daving and dia at	GAMW-02	4/10/2019	10/24/2019	2	
Downgradient Monitoring Well	GAMW-03	4/10/2019	10/25/2019	2	
wormoning weir	GAMW-04	4/10/2019	10/25/2019	2	
Total Number	of Samples	6	5	11	

### Notes:

Sample counts do not include QA/QC samples.

(1) Sample events #1-#11 were completed prior to 2019. The purpose, sample parameters, and sample dates are included in the 2017 Annual Report and the 2018 Annual Report.

(2) Location was not part of the monitoring well network during this monitoring event.

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

NI= not installed

Prepared by: DFS Checked by: AMH Reviewed by: MAH



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

Analyte	Unit	GAMW-01		GAMW-01B GA		W-02	GAMW-03		GAMW-04		GAMW-08	GAMW-11		
		2019-04-09	2019-10-24	2019-10-24	2019-10-24	2019-04-10	2019-10-24	2019-04-10	2019-10-25	2019-	04-10	2019-10-25	2019-04-09	2019-04-09
		N	FD	N	N	N	N	N	N	FD	N	N	N	N
CCR Appendix III														
Boron	mg/L	0.2	0.16	0.16	0.26	0.27	0.32	0.34	0.4	0.49	0.5	0.38	0.12	0.14
Calcium	mg/L	85	76	73	100	91	110	76	79	120	110	110	68	66
Chloride	mg/L	3.3	4.6	5.8	17	1.4	4.1	2.2	3.2	4	4.2	1.8 J	5.7	5.3
Fluoride	mg/L	0.26	2 U	2 U	2.3	2.6	2.7	1.5	1.6 J	0.38	0.4	3.3 J	1.2	1.6
pН	pH units	5.51		6.73	7.02	6.27	7.6	6.1	6.95		5.68	6.98	6.59	6.38
Sulfate	mg/L	56	34	33	45	93	120	100	140	280	300	130	44	79
Total Dissolved Solids	mg/L	370 J	300	320	340	400	430	350	350	600	620	480	250 J	310 J
CCR Appendix IV														
Antimony	mg/L	0.00073 J	0.00081 J	0.00083 J	0.00076 J	0.00074 J	0.00057 J	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.0012 J	0.002 U
Arsenic	mg/L	0.005 U	0.0011 J	0.0013 J	0.0014 J	0.0013 J	0.0015 J	0.005 U	0.005 U	0.0024 J	0.0025 J	0.0027 J	0.0053	0.005 U
Barium	mg/L	0.027	0.023	0.023	0.023	0.022	0.029	0.021	0.024	0.043	0.04	0.045	0.022	0.03
Beryllium	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	0.00033 J	0.001 U	0.001 U
Cadmium	mg/L	0.00044 J	0.00025 J	0.00023 J	0.00065 J	0.0017	0.0022	0.0016	0.0014	0.0026	0.0025	0.008	0.0013	0.001 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	0.001 J	0.00098 J	0.002 U	0.0012 J	0.002 U
Cobalt	mg/L	0.001 U	0.001 U	0.001 U	0.00053 J	0.00021 J	0.001 U	0.001 U	0.001 U	0.00055 J	0.00051 J	0.00024 J	0.001 U	0.001 U
Fluoride	mg/L	0.26	2 U	2 U	2.3	2.6	2.7	1.5	1.6 J	0.38	0.4	3.3 J	1.2	1.6
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
Lithium	mg/L	0.002 J	0.0031 J	0.0035 J	0.0056 J	0.012	0.018	0.0058 J	0.0095	0.012	0.011	0.063	0.0097	0.008 U
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	0.0002 U
Molybdenum	mg/L	0.02	0.023	0.021	0.032	0.023	0.034	0.094	0.11	0.041	0.038	0.022	0.014	0.036
Radium, Total	pci/l	0.485				0.392 U		0.405 U		0.466	0.387 U		0.432 U	0.515
Radium-226	pci/l	0.115 U				0.0865 U		0.107 U		0.143 U	0.164		0.0976 U	0.114 U
Radium-228	pci/l	0.429				0.392 U		0.405 U		0.42 U	0.387 U		0.432 U	0.539
Selenium	mg/L	0.011	0.016	0.015	0.017	0.018	0.064	0.024	0.063	0.005 U	0.005 U	0.022	0.0069	0.0064
Thallium	mg/L	0.002	0.0025	0.0024	0.0035	0.003	0.0034	0.005	0.0067	0.00049 J	0.00045 J	0.0025	0.0017	0.001 U
Sample Parameters														
Dissolved Oxygen	mg/L	4.1		4.76	0.51	4.1	2.62	2.54	2.2		0.13	2.89	5.98	4.42
Oxidation-Reduction Po	millivolts	250.6		267.9	219.8	150.8	189.1	132.9	257.9		107.4	231.6	207.7	198.5
pH	SU	5.51		6.73	7.02	6.27	7.6	6.1	6.95		5.68	6.98	6.59	6.38
Specific Conductivity	uS/cm	522		400	457	549	520	508	431		829	525	379	451
Temperature	deg c	10.93		15.71	14.15	10.5	15.8	11.7	15.5		11.89	15.59	12.35	13.78
Turbidity	ntu	0.68		0.26	0.63	0.02	0.18	0.05	0.02		0.94	1.68	0.05	0.58

Note:

mg/L = milligrams per liter uS/cm = micro Siemens per centimeter

deg C = degrees Celsius NTU = Nephelometric Turbidity Units SU = Standard Units

pCi/L = picocuries per liter

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

"J" = Indicates the result is estimated.

Prepared by: AMH Checked by: DFS Reviewed by: MAH

# Table 4: Groundwater Protection Standards<br/>CCR Unit Bailly Secondary 1<br/>NIPSCO LLC Bailly Generating Station<br/>Chesterton, Indiana

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

## Notes:

MCL= Environmental Protection Agency Maximum Contaminant Level GWPS= Groundwater Protection Standard, calculated in September 2018 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.

Prepared by:	KMC
Checked by:	DFS
Reviewed by:	MAH

# Figures



IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIF



SECONDARY 1	YYYY-MM-DD DESIGNED PREPARED	1/22/2020 JSP SHL	
SECONDARY 1	YYYY-MM-DD DESIGNED	1/22/2020 JSP	
SECONDARY 1	YYYY-MM-DD	1/22/2020	
SECONDARY 1	ELE LOCATION N	ИАР	
PROJECT BAILLY GENERATING STATIO CHESTERTON, INDIANA	NC		
NORTHERN INDIANA PUBLIC	C SERVICE COM	IPANY LLC	
CLIENT			

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NOTE(S)

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Ð Background Well Location Downgradient Well Location CCR Unit 

LEGEND

Approximate Property Line

Pre-Plant Closure Generalized Flow Direction



### LEGEND



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



### NOTE(S)

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### CLIENT

## NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC

PROJECT BAILLY GENERATING STATION CHESTERTON, INDIANA

# TITLE POST SEPTEMBER 2019 WELL LOCATION MAP SECONDARY 1

CONSULTANT YYYY-MM-DD 1/22/2020 DESIGNED JSP PREPARED GOLDER SHL REVIEWED JSP APPROVED MAH PROJECT NO. 19121569 CONTROL FIGURE REV. А 0 3

APPENDIX A

Extension of 60 Days to Complete Assessment of Corrective Measures



# REPORT

# BAILLY GENERATING STATION Chesterton, Indiana

EXTENSION OF 60 DAYS TO COMPLETE ASSESSMENT OF CORRECTIVE MEASURES FOR CCR SURFACE IMPOUNDMENTS REFERRED TO AS PRIMARY 1, PRIMARY 2, AND SECONDARY 1

Pursuant to 40 CFR 257.96(a)

Submitted to:

Northern Indiana Public Service Company 2755 Raystone Drive Valparaiso, IN 46383

Submitted by:

# Golder Associates Inc.

670 North Commercial Street, Suite 103 Manchester, NH 03101 +1 603 668-0880

164817101

February 2019

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# ATTACHMENTS

Figure 1 Site Location Map Exhibit A Statement of Certification

# **1.0 INTRODUCTION**

# 1.1 Background

The Northern Indiana Public Service Company (NIPSCO) Bailly Generating Station (BGS or Site) manages coal combustion residuals (CCR) in four Hypalon-lined<sup>1</sup> surface impoundments (see Figure 1). Monitoring of groundwater downgradient impoundments referred to as Primary 1, Primary 2, and Secondary 1 per 40 CFR §257.95(g) indicates releases in exceedance of the groundwater protection standard (GWPS), requiring assessment of corrective measures and closure.

# 1.2 Purpose

Within 90 days of the detection of an Appendix IV constituent at a statistically significant level above the GWPS defined in 40 CFR §257.95(h), 40 CFR §257.96 requires NIPSCO to initiate and 90 days to complete an assessment of corrective measures to prevent further releases, remediate any releases, and restore affected areas to original conditions. However, the regulations allow NIPSCO to demonstrate the need for additional time, not to exceed 60 days, to complete the assessment due to site-specific conditions or circumstances. The purpose of this document is to demonstrate the requirement for the 60-day extension of the initial 90-day corrective measures assessment deadline.

# 2.0 ASSESSMENT OF CORRECTIVE MEASURES

# 2.1 Approach

NIPSCO determined the identification and screening of potential corrective measures required CCR Management Unit- and Site-specific data beyond that available from Detection and Assessment Monitoring programs only. Supplemental data needs included the characterization of source materials and the abilities of Site conditions to support various corrective measures alternatives.

# 2.2 Work-to-Date Encountering Site-Specific Conditions

Prior to the confirmation of exceedances of groundwater protection standards (GWPS), NIPSCO engaged in the design and installation of supplemental source material, soil, pore water, and groundwater sampling programs. Steps in this linear supplemental assessment process included:

- investigation program design/scoping;
- subcontractor driller procurement and scheduling;
- access to and clearance of potential drilling locations within a generating station buffer area downgradient of the surface impoundments;
- sample collection, laboratory turnaround, and data validation; and
- preliminary evaluation of analytical data.

By necessity, due to the various stages inherent in the supplemental data collection program, a substantial portion of the initial 90-day assessment period was consumed by data collection and preliminary analysis, leaving insufficient time to complete the assessment of corrective measures within the initial performance period.

<sup>&</sup>lt;sup>1</sup> Does not meet the 40 CFR Part 257.71 Liner design criteria for existing CCR surface impoundments

# 2.3 Work-to-Date Encountering Site-Specific Circumstances

NIPSCO is engaged in other ongoing activities for BGS which directly support the Assessment of Corrective Measures process including:

- Upon Indiana Department of Environmental Management (IDEM) approval, NIPSCO intends to close the CCR surface impoundments by removal of source materials, with said source removal being an integral component of its overall Corrective Measures strategy for groundwater. NIPSCO has been working diligently to meet a May 1, 2019 target date for preparation and submittal to IDEM of a Closure Application for these three units plus a fourth impoundment, the Boiler Slag Pond, which has not exhibited a GWPS exceedance but is being closed along with the other impoundments as part of the station decommissioning; and
- Related to supplemental groundwater investigation work discussed in Section 2.2 and as one of several options, NIPSCO is performing a preliminary evaluation of the feasibility of in-situ as well as ex-situ processes as potential remedial alternatives to be considered in the Corrective Measures alternatives screening process.

Similar to work being conducted as discussed in Section 2.2, activities as described herein are ongoing but could not be completed within the initial 90-day performance period due to inherent complexity, the necessity to understand and respond to requirements of state regulators, or lack of a clear outcome based on results to date.

# 3.0 CONCLUSION

Due to an exceedance of a GWPS downgradient of CCR surface impoundments at BGS, NIPSCO must within 90 days complete an assessment of corrective measures unless a demonstration for an additional 60-day extension of time is made and certification from a qualified professional engineer attests to the accuracy of the demonstration. This document demonstrates that NIPSCO has initiated the assessment of corrective measures process, is taking reasonable steps to complete the process in a timely manner and provides the basis for the qualified professional engineer's attestation for an additional 60-day extension. Pursuant to 40 CFR §257.96(a), a statement of Certification is appended to this plan and located in Exhibit A.

## Golder Associates Inc.

Mark A. Haney Program Leader and Principal

MAH/drb

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p:/projects/2016/1648171 nipsco ccr/01 extender/bailly- phase 01/reports and deliverables/60-day cm extension/bgs multi-unit 60 day corrective measures extension request 02-25-19\_final.docx



# LEGEND

Approximate Property Line

CCR Units

# REFERENCES

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

Elevations are in North American Vertical Datum 88
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			360	180	0		360					
							Feet					
REV.	DATE	DES			REVISION DESCRI	PTION		GIS	СНК	RVW		
PROJ	DATE DES REVISION DESCRIPTION GIS CHK RVW											

# NORTHERN INDIANA PUBLIC SERVICE COMPANY BAILLY GENERATING STATION CHESTERTON, INDIANA

# BOILER SLAG POND, PRIMARY 1, PRIMARY 2, SECONDARY 1 LOCATION MAP

	PROJECT No.		152-6086	FILE No648171A017_CCR_BaseMap		
	DESIGN	DFS	2017-12-07	SCALE: AS SHOWN REV. 0		
	GIS	SHL	2019-02-22			
<b>US</b> GOLDER	CHECK	JSP	2019-02-22	FIGURE 1		
•	REVIEW	MAH	2019-02-22			



**EXHIBIT A** 

Northern Indiana Public Service Company (NIPSCO) Bailly Generating Station (BGS) Chesterton, Porter County, Indiana CCR Surface Impoundments Primary 1, Primary 2, and Secondary 1

### STATEMENT OF CERTIFICATION

# NIPSCO BGS CCR SURFACE IMPOUNDMENTS PRIMARY 1, PRIMARY 2, AND SECONDARY 1 ASSESSMENT OF CORRECTIVE MEASURES

40 Code of Federal Regulations (CFR), Part 257.96(a)

I, Richard Wesenberg, certify that I have personally examined and am familiar with the provisions of Title 40 of the Code of Federal Regulations Part 257.96 and with the information submitted in the NIPSCO Extension of 60 Days to Complete Assessment of Corrective Measures for CCR Surface Impoundments Referred to as Primary 1, Primary 2, and Secondary 1 documentation, prepared by Golder Associates Inc., dated February 2019. I believe that the information contained therein is true, accurate and has been prepared in accordance with good engineering practices and that the documentation provided in accordance with 257.96(a) demonstrates the need for additional time to complete the assessment of corrective measures due to site-specific conditions and circumstances.



Richard A. Wesenberg, PE Program Leader and Principal Registered Professional Engineer State of Indiana No.: PE11500584

Golder Associates Inc. 670 North Commercial Street, Suite 100 Manchester, New Hampshire, USA 03101

T: +1 603 668-0880 +1 603 668-1199



golder.com