



**GOLDER**

# 2020 Annual Groundwater Monitoring and Corrective Action Report - Landfill Phase V, Phase VI, and Phase VII

*NIPSCO LLC R. M. Schahfer 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**

R.M. Schahfer Generating Station  
Wheatfield, Indiana

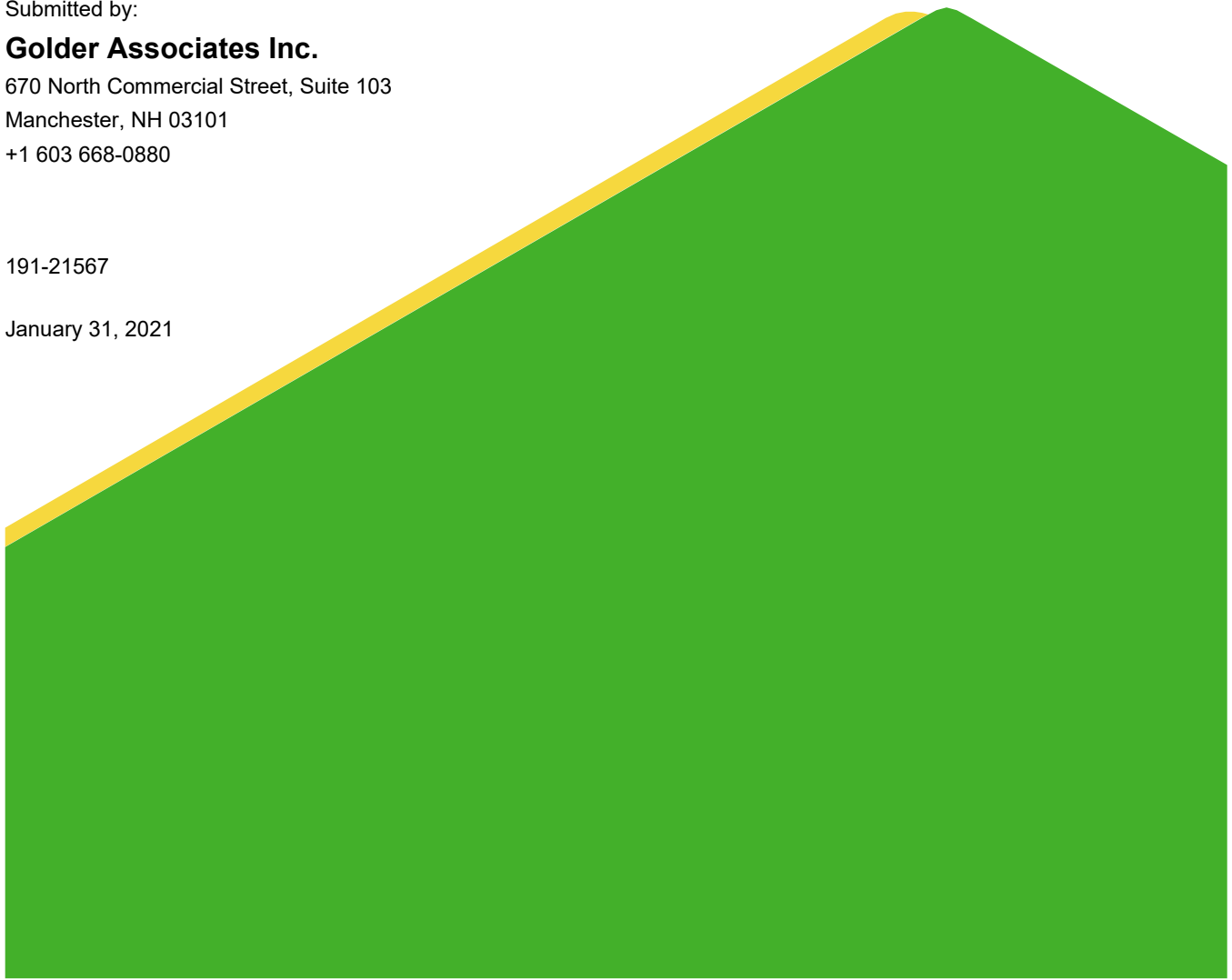
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## 1.0 INTRODUCTION

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 Rollin M. Schahfer Generating Station (RMSGs, Schahfer) Landfill Phases V, VI, and VII (together, the CCR Unit) located at 2723 E 1500 N Road in Wheatfield, Jasper County, Indiana (Latitude 41° 12' 36" N and Longitude 87° 01' 48" W, see Figure 1). Phase V is an approximately 18-acre cell that stopped receiving CCR on April 1, 2017. Phase VI is an approximately 15-acre cell located due north of Phase V, which began receiving CCR on August 1, 2016. Phase VII is an approximately 14-acre lined cell located immediately north of Phase VI which was constructed in 2018. Phase VII was designed to meet CCR Rule requirements of a new CCR landfill and will likely begin receiving waste in late 2021. Closed, non-regulated (under the CCR Rule) Schahfer Landfill Phases I through IV are primarily located east of the CCR Rule-regulated landfill cells as shown in Figure 2. Golder prepared the 2020 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.

To comply with the CCR Rule, NIPSCO LLC and Golder decided to monitor Phases V, VI and VII as one CCR Unit due to the design, construction, and proximity of historical non-regulated landfill cells (i.e., Phases II and III) and because there is no practical means of monitoring groundwater between the three CCR landfill cells (i.e., Phases V, VI, and VII). NIPSCO LLC updated the monitoring well network in 2018 concurrent with construction of Phase VII. The CCR Unit is currently in Detection Monitoring pursuant to 40 CFR §257.94. 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 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 years 2017 and 2018, Golder collected background groundwater samples and performed Detection Monitoring at the CCR Unit pursuant to the requirements of 40 CFR §257.94. Following the identification of statistically significant increases (SSIs) in January 2018, Golder prepared an alternative source demonstration (ASD) in April 2018,

therefore, the CCR Unit remained in Detection Monitoring. In 2019, Golder performed the fourth and fifth Detection Monitoring sampling events. In 2020, Golder performed the sixth and seventh Detection Monitoring sampling events. The SSIs identified in 2020 are summarized in the embedded table below.

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH <sup>1</sup>	TDS
GAMW26				X			
GAMW26B		X	X		X		X
GAMW27	X	X			X		X
GAMW27B	X	X	X		X		X
GAMW38B	X	X			X		X
GAMW39		X					
GAMW39B	X	X	X		X		X
GAMW40	X	X					X
GAMW40B	X	X	X		X	X	X
GAMW41	X	X	X		X		X
GAMW41B	X	X	X		X	X	X

"X" represents an SSI

1 = pH value is based on field water quality meter reading

Pursuant to 40 CFR §257.94, a qualified Indiana-licensed professional engineer recertified the ASD in May and September 2020; thus, the CCR Unit began and ended the current annual reporting period in Detection Monitoring. Based upon groundwater monitoring results collected pursuant to the CCR Rule to date, no corrective measures program requirements as outlined in 40 CFR §257.96-98 have either been triggered or implemented at the CCR Unit.

## 2.1 Key Actions Completed - 2020

NIPSCO LLC completed the following key actions relative to CCR Rule groundwater monitoring at the CCR Unit during calendar year 2020:

- Preparation of the of 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 fifth Detection Monitoring event in February 2020 (40 CFR §257.95(d))
- Performance of the sixth Detection Monitoring event in March 2020 (40 CFR §257.94)
- Recertification of the RMSGS Landfill Phases V and VI Alternative Source Demonstration (ASD) in May 2020 (40 CFR §257.94(e))
- Evaluation of the results of the sixth Detection Monitoring event in June 2020 (40 CFR §257.95(d))

- Recertification of the RMSGS Landfill Phases V and VI ASD in September 2020 (40 CFR §257.94(e))
- Performance of the seventh Detection Monitoring event in September 2020 (40 CFR §257.94)
- Evaluation of the results of the seventh Detection Monitoring event in December 2020 (40 CFR §257.95(d))

## 2.2 Monitoring System Modifications

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

Background Monitoring Wells	Downgradient Monitoring Wells	Decommissioned Monitoring Wells
GAMW-20, GAMW-24, GAMW-24B, GAMW-25, GAMW-25B	GAMW-26, GAMW-26B, GAMW-27, GAMW-27B, GAMW-38, GAMW-38B, GAMW-39, GAMW-39B, GAMW-40, GAMW-40B, GAMW-41, GAMW-41B	GAMW-21, GAMW-21B, GAMW-22, GAMW-22B, GAMW-23, GAMW-23B, GAMW-28, GAMW-28B

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

## 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 Landfill Phases V and VI 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 40 CFR Part 257 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 identify SSIs.

Golder determined that SSIs existed for Phases V and VI in January 2018. Golder identified a potential alternative source that could explain the SSIs and prepared an ASD. A qualified Indiana-licensed professional engineer certified the ASD in April 2018. The ASD supports the findings that the SSIs determined in January 2018 do not result from a release from the CCR Unit. The key supporting lines of evidence described in the ASD indicate that the closed, non-regulated phases of the landfill (i.e., Phases I and II) are the source of the SSIs. Therefore, no further action (i.e., Assessment Monitoring) was warranted, and Phases V and VI appropriately remained in

Detection Monitoring. The ASD is presented in Appendix A of the 2018 Annual Groundwater Monitoring and Corrective Action Report, dated January 31, 2019 (2018 Annual Report, Golder 2019).

Golder performed the second Detection Monitoring event in February 2018, followed by a statistical evaluation and data analysis in May 2018 that determined that SSIs existed for Phases V and VI. Consistent with the previous evaluation, Golder identified a potential alternative source that explained the SSIs. A qualified Indiana-licensed professional engineer recertified the ASD in August 2018 (Appendix B of the 2018 Annual Report), confirming Phases V and VI appropriately remained in Detection Monitoring. Golder performed the third Detection Monitoring event in September 2018 followed by a statistical evaluation and data analysis in December 2018 that determined SSIs existed for Phases V and VI. Consistent with previous evaluations, Golder identified a potential alternative source that explained the SSIs. A qualified Indiana-licensed professional engineer recertified the ASD in March 2019, confirming Phases V and VI appropriately remained in Detection Monitoring. The ASD is presented in Appendix A of the 2019 Annual Groundwater Monitoring and Corrective Action Report, dated January 31, 2020 (2019 Annual Report, Golder 2020). The results from the second and third Detection Monitoring events are included in the 2018 Annual Report.

Golder performed the fourth Detection Monitoring event in February/March 2019 followed by a statistical evaluation and data analysis in June 2019 that determined that SSIs existed for Phases V and VI. Consistent with the previous evaluations, Golder identified a potential alternative source that explained the SSIs. A qualified Indiana-licensed professional engineer recertified the ASD in September 2019 (Appendix B of the 2019 Annual Report), confirming Phases V and VI appropriately remained in Detection Monitoring. Golder performed the fifth Detection Monitoring event in October 2019 followed by a statistical evaluation and data analysis in February 2020 that determined that SSIs existed for Phases V and VI. Consistent with the previous evaluations, Golder identified a potential alternative source that explained the SSIs. A qualified Indiana-licensed professional engineer recertified the ASD in May 2020 (Appendix A), confirming Phases V and VI appropriately remained in Detection Monitoring. The results from the fourth and fifth Detection Monitoring events are included in the 2019 Annual Report. The SSIs from the fifth Detection Monitoring event are summarized in the table below by downgradient monitoring well and constituent.

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH <sup>1</sup>	TDS
GAMW26				X			
GAMW27	X	X					
GAMW27B	X	X	X		X		X
GAMW38B	X	X			X		X
GAMW39		X				X	
GAMW39B	X	X	X		X	X	X
GAMW40		X					X
GAMW40B	X	X	X		X		X
GAMW41	X	X	X		X		X

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH <sup>1</sup>	TDS
GAMW41B	X		X		X		X

"X" represents an SSI

1 = pH value is based on field water quality meter reading

Golder performed the sixth Detection Monitoring event in March 2020 followed by a statistical evaluation and data analysis in July 2020 that determined that SSIs existed for Phases V, VI, and VII. Consistent with previous evaluations, Golder identified a potential alternative source that explained the SSIs. A qualified Indiana-licensed professional engineer recertified the ASD in September 2020 (Appendix B), confirming Phases V and VI appropriately remain in Detection Monitoring. The SSIs from the sixth Detection Monitoring event are summarized in the table below by downgradient monitoring well and constituent.

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH <sup>1</sup>	TDS
GAMW26				X			
GAMW27	X	X			X		X
GAMW27B	X	X	X		X		X
GAMW38B	X	X			X		X
GAMW39		X					
GAMW39B	X	X	X		X		X
GAMW40	X	X					X
GAMW40B	X	X	X		X	X	X
GAMW41	X	X	X		X		X
GAMW41B	X	X	X		X	X	X

"X" represents an SSI

1 = pH value is based on field water quality meter reading

Golder performed the seventh Detection Monitoring event in September 2020 followed by a statistical evaluation and data analysis in December 2020 that determined that SSIs existed for Phases V, VI, and VII. The SSIs are summarized in the table below by downgradient monitoring well and constituent.

	Boron	Calcium	Chloride	Fluoride	Sulfate	pH <sup>1</sup>	Total Dissolved Solids
GAMW-26				X			
GAMW-26B		X	X		X		X
GAMW-27	X	X			X		X
GAMW-27B	X	X	X		X		X

	Boron	Calcium	Chloride	Fluoride	Sulfate	pH <sup>1</sup>	Total Dissolved Solids
GAMW-38B	X	X			X		X
GAMW-39		X					
GAMW-39B	X	X	X		X		X
GAMW-40		X					X
GAMW-40B	X	X	X		X		X
GAMW-41	X	X	X		X		X
GAMW-41B	X	X	X		X	X	X

"X" represents an SSI

1 = pH value is based on field water quality meter reading

## 2.5 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™ statistical analysis software package.

In addition to the outliers identified in the 2019 Annual Report Golder identified the March 2018 total dissolved solids (TDS) result from monitoring well GAMW-26 as an outlier and removed this datum from the data set for the following reasons:

- Statistical testing, including the Dixon outlier test, identified this result as an outlier; and
- Trend charts indicated that this result was inconsistent with other TDS concentrations detected in this monitoring well.

Golder will continue to monitor trends and, if the CCR Unit enters Assessment Monitoring, detrending routines will be performed before using these data to calculate groundwater protection standards (GWPS).

## 2.6 Problems Encountered and Follow-Up Corrective Actions

In the sixth Detection Monitoring event (March 2020), groundwater was sampled from GAMW-20 at a turbidity level of approximately 6.4 nephelometric turbidity units (NTUs), GAMW-24B at approximately 10.1 NTUs, and GAMW-27 at approximately 5.96 NTUs and in the seventh Detection Monitoring event (September 2020), groundwater was sampled from GAMW-20 at a turbidity of approximately 5.1 NTUs. According to the CCR Groundwater Monitoring Program Implementation Manual (Golder 2017), groundwater samples are to be collected once a well has achieved a turbidity level below 5 NTUs. Due to time constraints in the field, wells were purged for a minimum of two hours and sampled when turbidity appeared to stabilize (e.g., no downward or



upward trend over three consecutive readings five minutes apart). Evaluation of the analytical results from these wells suggests that the slightly elevated turbidity levels had no significant effect on the representativeness of the samples of groundwater quality. Moving forward, wells will be purged for two hours or five well volumes, whichever is shorter. Professional judgement will then be used to determine when the purge water is representative of groundwater for sampling. In the event that an acceptable turbidity level cannot be achieved within a reasonable timeframe (e.g., three hours), Golder will redevelop the affected monitoring wells prior to the next sampling event.

### 3.0 KEY ACTIVITIES PROJECTED FOR 2021

During calendar year 2021, NIPSCO LLC anticipates conducting the following key CCR Rule groundwater monitoring activities for the RMSGS Landfill Phases V, VI, and VII:

- Prepare and submit the appropriate notifications according to the CCR Rule;
- Continue semi-annual Detection Monitoring groundwater sampling per CCR Rule requirements; 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- Landfill Phase V and Phase VI NIPSCO R. M. Schahfer Generating Station", January 31, 2018.

Golder Associates, "2018 Annual Groundwater Monitoring and Corrective Action Report- Landfill Phase V and Phase VI NIPSCO R. M. Schahfer Generating Station", January 31, 2019.

Golder Associates, "2019 Annual Groundwater Monitoring and Corrective Action Report- Landfill Phase V and Phase VI NIPSCO LLC R. M. Schahfer Generating Station", January 31, 2020.

Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", August 28, 2018.

Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", April 13, 2018.

Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", March 21, 2019.

Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", September 6, 2019.

# TABLES

**Table 1: Monitoring Well Network**  
**CCR Unit Schahfer Landfill Phases V, VI, and VII**  
**NIPSCO LLC Rollin M. Schahfer Generating Station**  
**Wheatfield, Indiana**

CCR Unit	Well Purpose	Monitoring Well ID	Installation Date	Decommission Date (If Applicable)	Basis For Action
LANDFILL Phase V, Phase VI, and Phase VII	Background Monitoring Well	GAMW-20	5/27/2016	-	Installed for Groundwater Quality Monitoring <sup>(1)</sup>
		GAMW-24	9/26/2016	-	
		GAMW-24B	9/26/2016	-	
		GAMW-25	10/4/2016	-	
		GAMW-25B	10/5/2016	-	
	Downgradient Monitoring Well	GAMW-21	5/31/2016	4/5/2018	Abandoned due to Landfill Construction Activities <sup>(2)</sup>
		GAMW-21B	5/31/2016	4/5/2018	
		GAMW-22	5/31/2016	4/5/2018	
		GAMW-22B	6/2/2016	4/5/2018	
		GAMW-23	6/2/2016	4/6/2018	
		GAMW-23B	6/2/2016	4/6/2018	
		GAMW-28	9/29/2016	4/6/2018	Installed for Groundwater Quality Monitoring <sup>(1)</sup>
		GAMW-28B	9/29/2016	4/6/2018	
		GAMW-26	10/4/2016	-	
		GAMW-26B	10/4/2016	-	Installed to Replace Abandoned Well <sup>(3)</sup>
		GAMW-27	10/3/2016	-	
		GAMW-27B	10/4/2016	-	
		GAMW-38	4/4/2018	-	
		GAMW-38B	4/3/2018	-	
		GAMW-39	4/4/2018	-	
GAMW-39B	4/4/2018	-			
GAMW-40	4/5/2018	-			
GAMW-40B	4/4/2018	-			
GAMW-41	5/17/2018	-			
GAMW-41B	5/17/2018	-			

Notes:

- 1) Per the CCR Rule requirements, Golder collected eight rounds of background data prior to October 17, 2017.
- 2) Monitoring well was abandoned due to the construction of landfill Phase VII.
- 3) Monitoring well was installed to replace an abandoned monitoring well. Well was first sampled in September 2018.

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

**Table 2: Summary of Sampling Events**  
**CCR Unit Schahfer Landfill Phases V, VI, and VII**  
**NIPSCO LLC Rollin M. Schahfer Generating Station**  
**Wheatfield, Indiana**

Well Purpose	Monitoring Well ID	Sample Event #16	Sample Event #17	Total Number of Samples
Purpose of Sample		Detection Monitoring	Detection Monitoring	
Sample Parameters		Appendix III	Appendix III	
Background Monitoring Well	GAMW-20	3/17/2020	9/16/2020	2
	GAMW-24	3/16/2020	9/15/2020	2
	GAMW-24B	3/16/2020	9/15/2020	2
	GAMW-25	3/17/2020	9/15/2020	2
	GAMW-25B	3/17/2020	9/16/2020	2
	GAMW-26	3/18/2020	9/16/2020	2
	GAMW-26B	3/18/2020	9/16/2020	2
	GAMW-27	3/18/2020	9/17/2020	2
	GAMW-27B	3/19/2020	9/17/2020	2
	GAMW-38	3/19/2020	9/17/2020	2
	GAMW-38B	3/19/2020	9/17/2020	2
	GAMW-39	3/23/2020	9/17/2020	2
	GAMW-39B	3/23/2020	9/17/2020	2
	GAMW-40	3/23/2020	9/17/2020	2
	GAMW-40B	3/23/2020	9/21/2020	2
	GAMW-41	3/24/2020	9/21/2020	2
GAMW-41B	3/24/2020	9/21/2020	2	
Total Number of Samples		17	17	34

**Notes:**

Sample counts do not include QA/QC samples.

(1) Sample events #1-15 were completed prior to 2020. The purpose, sample parameters, and sample dates are included in the 2017 Annual Report, 2018 Annual Report, and 2019 Annual Report.

(2) Sample events #16 and 17 correspond to the sixth and seventh Detection Monitoring events, respectively.

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

**Table 3: Analytical Data**  
**CCR Unit R. M. Schahfer Landfill Phases V, VI, and VII**  
**NIPSCO LLC R. M. Schahfer Schahfer Generating Station**  
**Wheatfield, Indiana**

Location		GAMW20			GAMW24		GAMW24B		GAMW25			GAMW25B		GAMW26	
Sample Date		2020-03-17	2020-09-16		2020-03-16	2020-09-15	2020-03-16	2020-09-15	2020-03-17	2020-09-15		2020-03-17	2020-09-16	2020-03-18	2020-09-16
Sample Type		N	FD	N	N	N	N	N	FD	N	N	N	N	N	N
Chemical Name	Unit														
<b>CCR Appendix III</b>															
Boron	mg/L	3.7	3.4	3.4	0.1 U	0.1 U	0.1 U	0.1 U	0.15	0.15	0.18	0.13	0.13	0.27	0.18
Calcium	mg/L	230	188	188	84.2	91	47.4	50.8	73.9	74.9	82.8	88.5	83	96.1	86.6
Chloride	mg/L	9.3	7.9	7.8	36.5	28 J+	3.7	6.6 J+	6.7	6.7	5.6 J+	7.8	6.8	2	13.8
Fluoride	mg/L	0.17	0.24	0.22	0.088	0.099	0.13	0.14	1.1	1.1	1.1	0.22	0.21	2.5	3.2
pH	SU	7.23		7.07	7.73	7.3	8.03	7.96		7.61	7.23	7.49	7.35	7.47	7.23
Sulfate	mg/L	669	552	549	72.8	88	38.7	37	51.7	51.1	57.7	82.9	77	69.1	53.7
Total Dissolved Solids	mg/L	1210	1110	1140	328	389	204	210	261	271	334	363	348	397	389
<b>Field Parameters</b>															
Dissolved Oxygen	mg/L	0.09		0.1	0.07	0.21	0.61	0.19		5.47	1.57	0.04	0.18	1.01	0.2
Oxidation-Reduction Potential	millivolts	-72.7		-103.9	-39.4	-76.9	-109.6	-152.7		141.6	-10.1	-121.2	-130.4	72.1	-28.4
pH	SU	7.23		7.07	7.73	7.3	8.03	7.96		7.61	7.23	7.49	7.35	7.47	7.23
Specific Conductance	uS/cm	1578		1314	555	530	317.9	284		485.5	465	577	449	632	561
Temperature	deg C	10.2		17.3	7.6	17	10.1	14		7.7	16.3	10.2	12.8	7.5	18
Turbidity	NTU	6.39		5.1	4.8	3.87	10.1	4.91		2.16	0.74	3.56	4.02	2.44	0.49

Notes:

mg/L = milligrams per liter

uS/cm = micro Siemens per centimeter

deg C = degrees Celsius

NTU = Nephelometric Turbidity Units

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.

"J+" = Indicates the result is estimated and may be biased high.

**Table 3: Analytical Data**  
**CCR Unit R. M. Schahfer Landfill Phases V, VI, and VII**  
**NIPSCO LLC R. M. Schahfer Schahfer Generating Station**  
**Wheatfield, Indiana**

Location		GAMW26B			GAMW27			GAMW27B		GAMW38		GAMW38B		GAMW39	
Sample Date		2020-03-18	2020-09-16	2020-03-18	2020-09-17	2020-03-19	2020-09-17	2020-03-19	2020-09-17	2020-03-19	2020-09-17	2020-03-19	2020-09-17	2020-03-23	2020-09-17
Sample Type		FD	N	N	N	FD	N	N	N	N	N	N	N	N	N
Chemical Name	Unit														
<b>CCR Appendix III</b>															
Boron	mg/L	0.26	0.25	0.64	4.4	4	3.9	11.5	12.3	0.98	0.99	5.4	5.8	0.93	0.93
Calcium	mg/L	88.6	87.3	158	288	286	283	415	356	72	79	239	232	165	229
Chloride	mg/L	13.1	13.1	56.3	16.2	12.3	12.9	488	451	4.5	4.9	29.2	36.5	7.2	12.2
Fluoride	mg/L	0.22	0.22	0.17	0.54	0.67	0.63	0.05 U	0.05 U	0.2	0.19	0.083	0.055	0.25	0.12
pH	SU		7.81	7.62	7.49		7.33	7.49	7.43	7.5	7.08	7	6.86	6.86	6.51
Sulfate	mg/L	130	129	803	803	884	824	7540	6790	195	224	683	742	187	430
Total Dissolved Solids	mg/L	436	456	1510	1330	1370	1340	11000	10800	471	551	1340	1440	723	1090
<b>Field Parameters</b>															
Dissolved Oxygen	mg/L		1.95	1.42	0.04		0.27	0.44	0.6	0.05	0.17	0.25	0.12	0.04	0.12
Oxidation-Reduction Potential	millivolts		-42.4	-75.4	-103.5		-114.7	-92.8	-110.8	-107.2	-104.6	-78.3	-95.7	-30.1	-59.6
pH	SU		7.81	7.62	7.49		7.33	7.49	7.43	7.5	7.08	7	6.86	6.86	6.51
Specific Conductance	uS/cm		715	1516	1619		1401	12796	10122	747	738	1801	1575	1128	1322
Temperature	deg C		10.2	12.7	9.5		16.3	11.6	14.1	8.1	19	10.3	14.8	8.4	18.3
Turbidity	NTU		4.8	4.65	5.96		0.53	2.59	0.88	3.85	1.5	4.41	4.56	4.69	4.29

Notes:

mg/L = milligrams per liter

uS/cm = micro Siemens per centimeter

deg C = degrees Celsius

NTU = Nephelometric Turbidity Units

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.

"J+" = Indicates the result is estimated and may be biased high.

**Table 3: Analytical Data**  
**CCR Unit R. M. Schahfer Landfill Phases V, VI, and VII**  
**NIPSCO LLC R. M. Schahfer Schahfer Generating Station**  
**Wheatfield, Indiana**

Location		GAMW39B		GAMW40		GAMW40B		GAMW41		GAMW41B	
Sample Date		2020-03-23	2020-09-17	2020-03-23	2020-09-17	2020-03-23	2020-09-21	2020-03-24	2020-09-21	2020-03-24	2020-09-21
Sample Type		N	N	N	N	N	N	N	N	N	N
Chemical Name	Unit										
<b>CCR Appendix III</b>											
Boron	mg/L	11.1	9.7	3.1	3.2	34.2	31.3	32.7	8.9	0.1 U	28.7
Calcium	mg/L	429	386	269	280	236	228	259	186	1 U	260
Chloride	mg/L	51.8	70	10.7	16.2	774	744	171	254	782	722
Fluoride	mg/L	0.078	0.05 U	0.2	0.18	0.91	0.05 U	0.33	0.21	0.53	0.05 U
pH	SU	6.89	6.67	6.71	6.52	8.18	8.03	7.3	7.07	8.25	8.1
Sulfate	mg/L	1160	1280	376	438	6430	5640	2500	2450	7020	6750
Total Dissolved Solids	mg/L	2350	2400	1330	1450	10600	11400	4290	4160	11300	11200
<b>Field Parameters</b>											
Dissolved Oxygen	mg/L	0.03	0.12	0.06	0.11	0.22	0.34	0.05	0.28	0.06	0.29
Oxidation-Reduction Potential	millivolts	-53.1	-75.2	21	-51.1	-134.1	-112.3	-51.4	-54.8	-145.3	-134
pH	SU	6.89	6.67	6.71	6.52	8.18	8.03	7.3	7.07	8.25	8.1
Specific Conductance	uS/cm	2868	2460	1909	1824	13504	13584	4931	5522	13916	13465
Temperature	deg C	10.9	15.7	8.5	18.1	8.8	14.4	7.6	19.2	9.7	16.7
Turbidity	NTU	4.62	3.64	3.81	1.02	2.3	3.7	4.88	4.21	4.62	4.28

Notes:

mg/L = milligrams per liter

uS/cm = micro Siemens per centimeter

deg C = degrees Celsius

NTU = Nephelometric Turbidity Units

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.

"J+" = Indicates the result is estimated and may be biased high.

Prepared by: DFSC

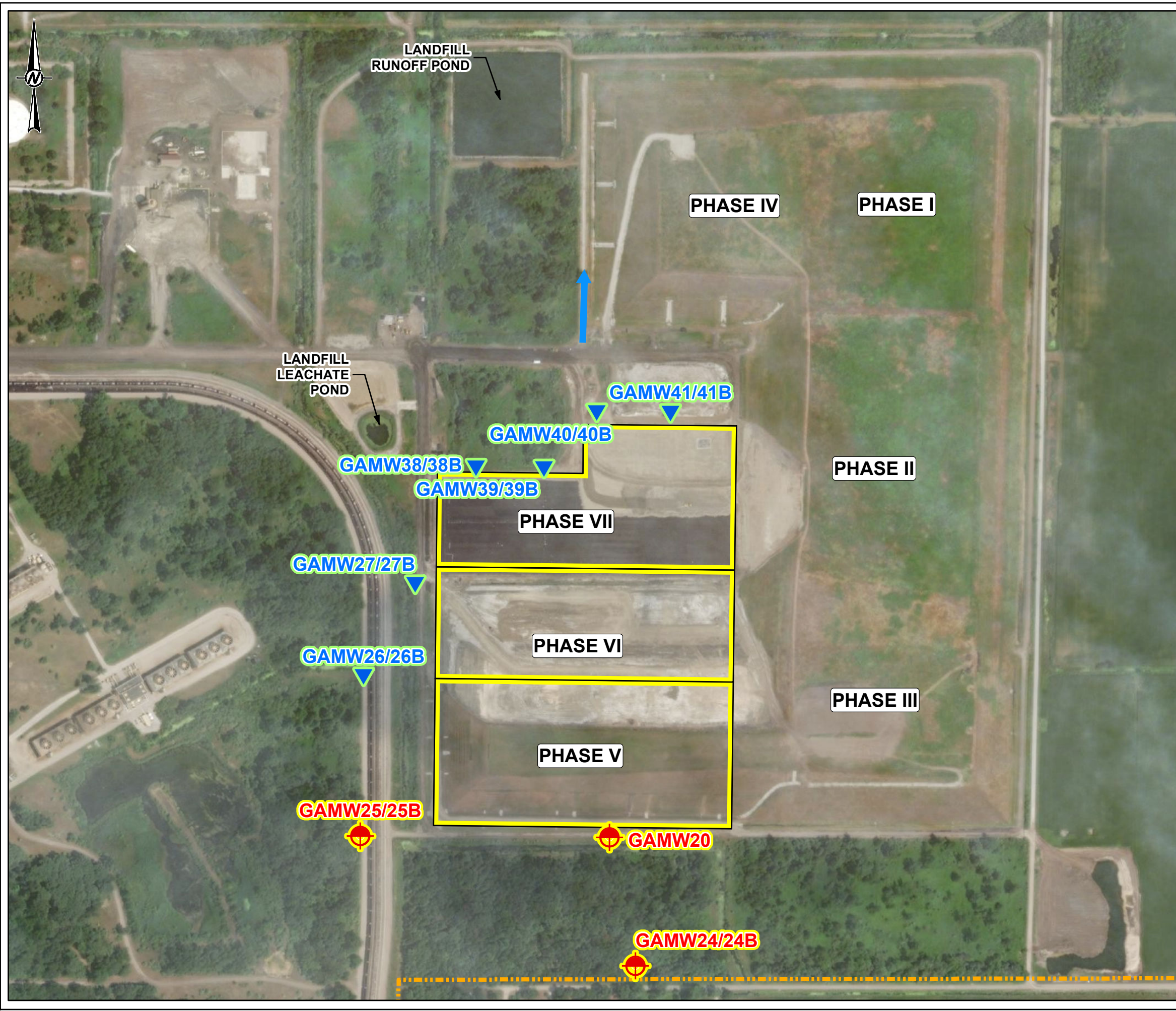
Checked by: KMC

Reviewed by: MAH

## FIGURES

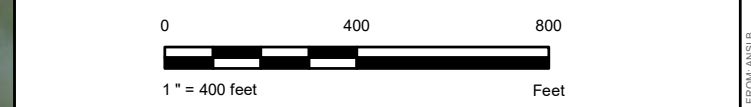






**LEGEND**

- Background Monitoring Well
- Downgradient Monitoring Well
- Generalized Groundwater Flow Direction
- CCR Units
- Approximate Property Line



**NOTE(S)**

**REFERENCE(S)**

1. SERVICE LAYER CREDITS: SOURCE: ESRI, MAXAR, GEOEYE, EARTHSTAR GEOGRAPHICS, CNES/AIRBUS DS, USDA, USGS, AEROGRIID, IGN, AND THE GIS USER COMMUNITY

**CLIENT**

NORTHERN INDIANA PUBLIC SERVICE COMPANY LLC

**PROJECT**

R.M. SCHAFER GENERATING STATION  
WHEATFIELD, INDIANA

**TITLE**

**WELL LOCATION MAP**  
**SCHAFER LANDFILL PHASES V, VI, AND VII**

CONSULTANT	DATE	REVISION
	YYYY-MM-DD	1/8/2021
	DESIGNED	DFS
	PREPARED	TBH
	REVIEWED	DFS
	APPROVED	MAH

PATH: V:\001\_GIS\Projects\WPC\Schahfer\08\_PRC\11121567\_2018\Report\40\_PRC\0002\_Annual\_Report\19121567-0002-HS-004.mxd PRINTED ON: 2021-01-08 AT: 8:38:10 AM

1in IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANS B

**APPENDIX A**

**RMSGs Landfill Phases V and VI  
Alternative Source Demonstration  
May 2020**

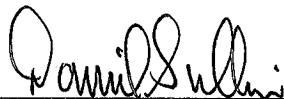
**Northern Indiana Public Service Company LLC  
(NIPSCO LLC)**

**R. M. Schahfer Generating Station  
Wheatfield, Indiana**

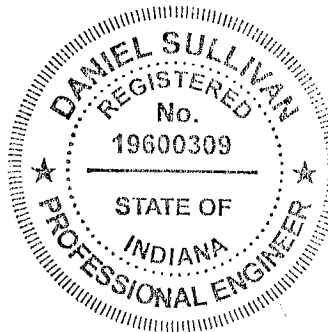
**Schahfer Landfill Phase V and Phase VI**

**Certification of Alternative Source Demonstration**

I, Daniel Sullivan, being a Professional Engineer in accordance with the laws of the State of Indiana, and having experience in the design, construction, and operation of restricted waste landfills and groundwater monitoring systems for them, do hereby state that I am qualified in the subject matter of CCR management, groundwater monitoring, data interpretation, and groundwater impacts. I have personally examined and am familiar with this alternative source demonstration (ASD) for the NIPSCO LLC R. M. Schahfer Generating Station, prepared by Golder, and dated May 2020. Based on an inquiry of those individuals immediately responsible, and on supporting data which I understand to be true, accurate and complete, I verify the information in this ASD is accurate and meets the applicable requirements of the CCR Rule. In consideration of the above, I certify to the best of my knowledge, information, and belief, that the ASD for the regulated CCR management unit referred to as Phase V and Phase VI has been prepared and meets the applicable requirements of 40 CFR §257.94(e)(2).



**Daniel Sullivan  
Indiana Professional Engineer  
License # 19600309**



5-7-2020  
Date

**TECHNICAL MEMORANDUM**

**DATE** May 7, 2020 **Project No.** 19121567

**TO** Marc Okin, Dan Sullivan NIPSCO LLC

**CC** Maggie Rice, Maureen Turman, Craig Myers, Joe Kutch, Mark Haney, Jim Peace

**FROM** Danielle Sylvia Cofelice **EMAIL** dsylvia@golder.com

**RE: R.M. SCHAHFER LANDFILL PHASES V AND VI ALTERNATIVE SOURCE DEMONSTRATION**

On behalf of Northern Indiana Public Service Company LLC (NIPSCO LLC), Golder Associates Inc. (Golder) performed a statistical evaluation of groundwater analytical results from the fifth (October 2019) groundwater Detection Monitoring event at the Rollin M. Schahfer Generating Station (RMSGs) Landfill Phase V and Phase VI (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.

Statistical analyses of Appendix III groundwater Detection Monitoring results indicated statistically significant increases (SSIs) for seven analytes detected in groundwater samples collected from downgradient wells compared to background levels. Although determination of an SSI generally indicates that the groundwater monitoring program should transition from Detection Monitoring to Assessment Monitoring, 40 CFR §257.94(e)(2) allows the owner or operator (i.e., NIPSCO LLC) to demonstrate that a source other than the CCR unit or another condition caused the apparent SSI(s). Golder identified similar SSIs after the first (October 2017) Detection Monitoring event at the RMSGs Landfill Phase V and Phase VI and submitted an Alternative Source Demonstration (ASD) on April 13, 2018. As described in that ASD, the conceptual site model, historical groundwater data, and landfill design indicate the source of the identified SSIs is the unlined portion of the landfill, Phases I and II, which is not regulated by the CCR Rule. Golder recertified the ASD based on the second (February/March 2018) Detection Monitoring Event, on August 28, 2018, the third (September 2018) Detection Monitoring Event, on March 21, 2019, and the fourth (March 2019) Detection Monitoring Event, on September 6, 2019.

NIPSCO constructed a new landfill cell (Phase VII) immediately north of Phase VI in 2018. Due to the proximity of Phase VII to Phase VI and landfill construction activities, Golder decommissioned monitoring wells GAMW-21/21B, GAMW-22/22B, GAMW-23/23B, and GAMW-28/28B, which were part of the original CCR Rule-required landfill monitoring network. Golder collected groundwater samples from these four well pairs from July 2016 to March 2018. To replace the decommissioned wells, Golder installed monitoring wells GAMW-38/38B, GAMW-39/39B, GAMW-40/40B, and GAMW-41/41B downgradient and along the waste boundary of Phase VII in April and May 2018.

Golder collected groundwater samples from existing and replacement monitoring wells during the October 2019 semi-annual monitoring event. Samples were not collected from monitoring wells GAMW-39 and GAMW-39B in October 2019; however, Golder collected samples from these monitoring wells in December 2019 and included those results along with the results from all other monitoring well samples in the statistical analysis. Groundwater

analytical data obtained from groundwater samples collected from the downgradient wells in October and December 2019 were consistent with historical analytical results. As discussed in the ASD recertification dated September 6, 2019, Golder calculated new prediction limits in June 2019 using all background data collected through March 2019. The table below provides the original prediction limits calculated in January 2018 and the revised prediction limits calculated in June 2019. Golder will re-evaluate the background dataset following collection of an additional four rounds of groundwater data from the background wells.

## 1.0 SUMMARY OF RESULTS

The results of the fifth Detection Monitoring event are included in the 2019 Annual Report and the results of the statistical analysis are summarized below. SSIs were detected in groundwater samples collected from monitoring wells downgradient of the RMSGS Landfill Phase V and Phase VI, for all Appendix III parameters. Overall, results are consistent with those collected previously and indicate few differences from the SSIs detected during the previous Detection Monitoring events. The differences are likely due to normal or temporal fluctuations in groundwater quality. The SSI results are summarized in the table below by well location and timeframe of the SSI exceedance.

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH	TDS
<b>Prediction Level (January 2018)</b>	<b>1.7</b>	<b>116.1</b>	<b>34.91</b>	<b>2.3</b>	<b>300</b>	<b>6.465-7.739</b>	<b>653.4</b>
<b>Prediction Level (June 2019)</b>	<b>3.2</b>	<b>130.9</b>	<b>39.93</b>	<b>2.3</b>	<b>470</b>	<b>6.353-7.82</b>	<b>1100</b>
GAMW21*							
GAMW21B*	1,2	1,2	1		1,2		1,2
GAMW22*		2					
GAMW22B*	1,2	1,2	1,2		1,2		1,2
GAMW23*	1,2	1,2			1,2	1,2	1,2
GAMW23B*	1,2	1,2	1,2		1,2	1,2	1,2
GAMW26				1,3,5			2
GAMW26B		1,3	3		1,3	3	1,3
GAMW27	1,2,3,4,5	1,2,3,4,5			1,2,3,4		1,2,3,4
GAMW27B	1,2,3,4,5	1,2,3,5	1,2,3,4,5		1,2,3,4,5	3	1,2,3,4,5
GAMW28*	1,2	1,2	1		1,2		1,2
GAMW28B*	1,2	1,2	1,2		1,2		1,2

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH	TDS
<b>Prediction Level (January 2018)</b>	<b>1.7</b>	<b>116.1</b>	<b>34.91</b>	<b>2.3</b>	<b>300</b>	<b>6.465-7.739</b>	<b>653.4</b>
<b>Prediction Level (June 2019)</b>	<b>3.2</b>	<b>130.9</b>	<b>39.93</b>	<b>2.3</b>	<b>470</b>	<b>6.353-7.82</b>	<b>1100</b>
GAMW38							
GAMW38B	3,4,5	3,4,5	3,4		3,4,5		3,4,5
GAMW39	3	3,4,5			3	5	3
GAMW39B	3,4,5	3,4,5	3,4,5		3,4,5	5	3,4,5
GAMW40	3,4	3,4,5			3		3,4,5
GAMW40B	3,4,5	3,4,5	3,4,5		3,4,5	3,4	3,4,5
GAMW41	4,5	4,5	4,5		4,5		4,5
GAMW41B	4,5	4	4,5		4,5		4,5

- "1" Indicates a statistically significant increase detected in the first Detection Monitoring event
- "2" Indicates a statistically significant increase detected in the second Detection Monitoring event
- "3" Indicates a statistically significant increase detected in the third Detection Monitoring event
- "4" Indicates a statistically significant increase detected in the fourth Detection Monitoring event
- "5" Indicates a statistically significant increase detected in the fifth Detection Monitoring event
- \*\*" Indicates monitoring well was decommissioned prior to the third Detection Monitoring event

## 2.0 ALTERNATIVE SOURCE DEMONSTRATION CONCLUSION

The preceding information indicates the results of the fifth Detection Monitoring event are consistent with the previous Detection Monitoring events, and the rationale behind the ASD dated April 13, 2018 is still applicable. Golder prepared the ASD in accordance with 40 CFR 257.94(e)(2) and it supports the finding that the SSIs determined on February 9, 2020 are not due to a release from the CCR Unit. As described in that ASD, the conceptual site model, historical groundwater data, and landfill design indicate that a release from the unlined portion of the landfill not subject to the CCR Final Rule, Phases I and II, is the source of the identified SSIs. Therefore, no further action (i.e., Assessment Monitoring) is warranted, and the Schahfer Landfill Phases V and VI will remain in Detection Monitoring.

## 3.0 REFERENCES

- Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", September 6, 2019.
- Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", March 31, 2019.
- Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", August 28, 2018.

Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", April 13, 2018.

[https://golderassociates.sharepoint.com/sites/nipsccocrgwmonitoring/shared documents/rmsgsrpts/landfill asd recertifications/2020-may/draft landfill asd recertification 050920 - copy.docx](https://golderassociates.sharepoint.com/sites/nipsccocrgwmonitoring/shared%20documents/rmsgsrpts/landfill%20recertifications/2020-may/draft%20landfill%20recertification%20050920%20copy.docx)



**APPENDIX B**

**RMSGs Landfill Phases V and VI  
Alternative Source Demonstration  
September 2020**

Northern Indiana Public Service Company LLC  
(NIPSCO LLC)

R. M. Schahfer Generating Station  
Wheatfield, Indiana

Schahfer Landfill Phase V and Phase VI

Certification of Alternative Source Demonstration

I, Daniel Sullivan, being a Professional Engineer in accordance with the laws of the State of Indiana, and having experience in the design, construction, and operation of restricted waste landfills and groundwater monitoring systems for them, do hereby state that I am qualified in the subject matter of CCR management, groundwater monitoring, data interpretation, and groundwater impacts. I have personally examined and am familiar with this alternative source demonstration (ASD) for the NIPSCO LLC R. M. Schahfer Generating Station, prepared by Golder, and dated October 2020. Based on an inquiry of those individuals immediately responsible, and on supporting data which I understand to be true, accurate and complete, I verify the information in this ASD is accurate and meets the applicable requirements of the CCR Rule. In consideration of the above, I certify to the best of my knowledge, information, and belief, that the ASD for the regulated CCR management unit referred to as Phase V and Phase VI has been prepared and meets the applicable requirements of 40 CFR §257.94(e)(2).



Daniel Sullivan  
Indiana Professional Engineer  
License # 19600309



9-29-2020  
Date

**TECHNICAL MEMORANDUM****DATE** September 29, 2020**Project No.** 19121567**TO** Marc Okin, Dan Sullivan NIPSCO LLC**CC** Maggie Rice, Maureen Turman, Craig Myers, Joe Kutch, Mark Haney, Jim Peace**FROM** Danielle Sylvia Cofelice**EMAIL** dsylvia@golder.com**RE: R.M. SCHAHFER LANDFILL PHASES V AND VI ALTERNATIVE SOURCE DEMONSTRATION**

On behalf of Northern Indiana Public Service Company LLC (NIPSCO LLC), Golder Associates Inc. (Golder) performed a statistical evaluation of groundwater analytical results from the sixth (March 2020) groundwater Detection Monitoring event at the Rollin M. Schahfer Generating Station (RMSGs) Landfill Phase V and Phase VI (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.

Statistical analyses of Appendix III groundwater Detection Monitoring results indicated statistically significant increases (SSIs) for seven analytes detected in groundwater samples collected from downgradient wells compared to background levels. Although determination of an SSI generally indicates that the groundwater monitoring program should transition from Detection Monitoring to Assessment Monitoring, 40 CFR §257.94(e)(2) allows the owner or operator (i.e., NIPSCO LLC) to demonstrate that a source other than the CCR unit or another condition caused the apparent SSI(s). Golder identified similar SSIs after the first (October 2017) Detection Monitoring event at the RMSGs Landfill Phase V and Phase VI and submitted an Alternative Source Demonstration (ASD) on April 13, 2018. As described in that ASD, the conceptual site model, historical groundwater data, and Phase V and Phase VI landfill design indicate the source of the identified SSIs is the unlined portion of the landfill, Phases I and II, which is not regulated by the CCR Rule. Golder recertified the ASD based on the second (February/March 2018) Detection Monitoring Event, on August 28, 2018; the third (September 2018) Detection Monitoring Event, on March 21, 2019; the fourth (March 2019) Detection Monitoring Event, on September 6, 2019; and the fifth (October 2019) Detection Monitoring Event, on May 7, 2020.

NIPSCO constructed a new landfill cell (Phase VII) immediately north of Phase VI in 2018. Due to the proximity of Phase VII to Phase VI and landfill construction activities, Golder decommissioned monitoring wells GAMW-21/21B, GAMW-22/22B, GAMW-23/23B, and GAMW-28/28B, which were part of the original CCR Rule-required landfill monitoring network. Golder collected groundwater samples from these original four well pairs from July 2016 to March 2018. To replace the decommissioned wells, Golder installed monitoring wells GAMW-38/38B, GAMW-39/39B, GAMW-40/40B, and GAMW-41/41B downgradient and along the waste boundary of Phase VII in April and May 2018.

Golder collected groundwater samples from existing and replacement monitoring wells during the October 2019 and March 2020 semi-annual monitoring events. Groundwater analytical data obtained from groundwater samples collected from the downgradient wells in these subsequent events were consistent with historical analytical results. As discussed in the ASD recertification dated September 6, 2019, Golder calculated new prediction limits in June 2019 using all background data collected through March 2019. The table below provides the original prediction limits calculated in January 2018 and the revised prediction limits calculated in June 2019. Golder will

re-evaluate the background dataset following collection of an additional four rounds of groundwater data from the background wells.

## 1.0 SUMMARY OF RESULTS

The results of the sixth Detection Monitoring event are included in the 2020 Annual Report and the results of the statistical analysis are summarized below. SSIs were detected in groundwater samples collected from monitoring wells downgradient of the RMSGS Landfill Phase V and Phase VI, for all Appendix III parameters. Overall, results are consistent with those collected previously and indicate few differences from the SSIs detected during the previous Detection Monitoring events. The differences are likely due to normal or temporal fluctuations in groundwater quality. The SSI results are summarized in the table below by well location and timeframe of the SSI exceedance.

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH	TDS
<b>Prediction Level (January 2018)</b>	<b>1.7</b>	<b>116.1</b>	<b>34.91</b>	<b>2.3</b>	<b>300</b>	<b>6.465-7.739</b>	<b>653.4</b>
<b>Prediction Level (June 2019)</b>	<b>3.2</b>	<b>130.9</b>	<b>39.93</b>	<b>2.3</b>	<b>470</b>	<b>6.353-7.82</b>	<b>1100</b>
GAMW21*							
GAMW21B*	1,2	1,2	1		1,2		1,2
GAMW22*		2					
GAMW22B*	1,2	1,2	1,2		1,2		1,2
GAMW23*	1,2	1,2			1,2	1,2	1,2
GAMW23B*	1,2	1,2	1,2		1,2	1,2	1,2
GAMW26				1,3,5,6			2
GAMW26B		1,3	3		1,3	3	1,3
GAMW27	1,2,3,4,5,6	1,2,3,4,5,6			1,2,3,4,6		1,2,3,4,6
GAMW27B	1,2,3,4,5,6	1,2,3,5,6	1,2,3,4,5,6		1,2,3,4,5, 6	3	1,2,3,4,5,6
GAMW28*	1,2	1,2	1		1,2		1,2
GAMW28B*	1,2	1,2	1,2		1,2		1,2
GAMW38							
GAMW38B	3,4,5,6	3,4,5,6	3,4		3,4,5,6		3,4,5,6
GAMW39	3	3,4,5,6			3	5	3
GAMW39B	3,4,5,6	3,4,5,6	3,4,5,6		3,4,5,6	5	3,4,5,6
GAMW40	3,4,6	3,4,5,6			3		3,4,5,6

Monitoring Well ID	Boron	Calcium	Chloride	Fluoride	Sulfate	pH	TDS
<b>Prediction Level (January 2018)</b>	<b>1.7</b>	<b>116.1</b>	<b>34.91</b>	<b>2.3</b>	<b>300</b>	<b>6.465-7.739</b>	<b>653.4</b>
<b>Prediction Level (June 2019)</b>	<b>3.2</b>	<b>130.9</b>	<b>39.93</b>	<b>2.3</b>	<b>470</b>	<b>6.353-7.82</b>	<b>1100</b>
GAMW40B	3,4,5,6	3,4,5,6	3,4,5,6		3,4,5,6	3,4,6	3,4,5,6
GAMW41	4,5,6	4,5,6	4,5,6		4,5,6		4,5,6
GAMW41B	4,5,6	4,6	4,5,6		4,5,6	6	4,5,6

- "1" Indicates a statistically significant increase detected in the first Detection Monitoring event
- "2" Indicates a statistically significant increase detected in the second Detection Monitoring event
- "3" Indicates a statistically significant increase detected in the third Detection Monitoring event
- "4" Indicates a statistically significant increase detected in the fourth Detection Monitoring event
- "5" Indicates a statistically significant increase detected in the fifth Detection Monitoring event
- "6" Indicates a statistically significant increase detected in the sixth Detection Monitoring event
- "\*\*" Indicates monitoring well was decommissioned prior to the third Detection Monitoring event

## 2.0 ALTERNATIVE SOURCE DEMONSTRATION CONCLUSION

The preceding information indicates the results of the sixth Detection Monitoring event are consistent with the previous Detection Monitoring events, and the rationale behind the ASD dated April 13, 2018 is still applicable. Golder prepared the ASD in accordance with 40 CFR 257.94(e)(2) and it supports the finding that the SSIs determined on July 7, 2020 are not due to a release from the CCR Unit. As described in that ASD, the conceptual site model, historical groundwater data, and the Phase V and Phase VI landfill design indicate that a release from the unlined portion of the landfill not subject to the CCR Final Rule, Phases I and II, is the source of the identified SSIs. Therefore, no further action (i.e., Assessment Monitoring) is warranted, and the Schahfer Landfill Phases V and VI will remain in Detection Monitoring.

## 3.0 REFERENCES

- Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", April 13, 2018.
- Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", August 28, 2018.
- Golder Associates, "Northern Indiana Public Service Company R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", March 31, 2019.
- Golder Associates, "Northern Indiana Public Service Company LLC R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", September 6, 2019.
- Golder Associates, "Northern Indiana Public Service Company LLC R.M. Schahfer Generating Station Wheatfield, Indiana- Schahfer Landfill Phase V and Phase VI - Alternative Source Demonstration", May 7, 2020.



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