

2020 ANNUAL GROUNWATER MONITORING AND CORRECTIVE ACTION REPORT

**HAVANA EAST ASH POND
(CELLS 1, 2, 3, AND 4)**

FORMER HAVANA POWER STATION

**Prepared for
Finch Development, LLC**

**Prepared by
ATON, LLC**

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Executive Summary

This report has been prepared to provide the information required by Title 40 of the Code of Federal Regulations (40 CFR) § 257.90(e) for Havana East Ash Pond (Cells 1, 2, 3, and 4) located at the Former Havana Power Station near Havana, Illinois.

Groundwater is being monitored at Havana East Ash Pond in accordance with the Assessment Monitoring Program requirements outlined in 40 CFR § 257.95.

No changes were made to the monitoring system in 2020.

No statistically Significant Levels (SSLs) of 40 CFR Part 257 Appendix IV were determined in 2020 and Havana East Ash Pond remains active in the Assessment Monitoring Program.

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Introduction

This report has been prepared by ATON, LLC on behalf of Finch Development, LLC to provide the information required by 40 CFR § 257.90(e) for Havana East Ash Pond located at Havana Power Station near Havana, IL.

In accordance with 40 CFR § 257.90, the owner or operator of a Coal Combustion Residual (CCR) unit must prepare an Annual Groundwater Monitoring and Corrective Action Report for the preceding calendar year that documents the status of the Groundwater Monitoring and Corrective Action Program for the CCR unit and provides a summary of actions completed, problems encountered, discussions of actions to resolve problems, and project activities for the upcoming year. The Annual Report must contain, at minimum, these items:

- A discussion of the Status of the Monitoring Program.
- Identification of any monitoring wells installed or decommissioned along with a brief reasoning.
- Monitoring data obtained under §257.90 through 257.98 and a summary of findings.
- A map, aerial image, or diagram showing the CCR unit and monitoring wells.
- Other relevant information as specified under §257.90 through 257.98.

Monitoring Program Status

No changes were made to the Monitoring Program status in 2020, and Havana East Ash Pond remain in the Assessment Monitoring Program in accordance with 40 CFR §257.95.

Summary of Actions Completed

The Assessment Monitoring Program is summarized in **Table 4**. The groundwater monitoring system, including the CCR unit and all background and downgradient monitoring wells are presented in **Figure 1**. No changes were made in 2020 with no wells being installed or decommissioned. One groundwater sample was taken from each monitoring well during a monitoring event, there were two monitoring events in 2020: first and third quarters. All samples were collected and analyzed in accordance with the Sampling and Analysis Plan (NRT/OBG, 2017b). All monitoring data obtained under 40 CFR §257.90 through 257.98 in 2020 are presented in **Table 3**. Analytical data was evaluated in accordance with the Statistical Analysis Plan (NRT/OBG, 2017a) to determine Statistically Significant Levels outlined in **Table 1** and Groundwater Protection Standards in **Table 2**.

Problems Encountered and Actions to Resolve Problems

No problems were encountered with the Groundwater Monitoring Program during 2020. Groundwater samples were collected and analyzed in accordance with the Sampling and Analysis Plan (NRT/OBG, 2017b) and Statistical Analysis Plan (NRT/OBG, 2017a).

Projected Activities for 2021

- Continuation of the Assessment Monitoring Program with sampling scheduled for the first and third quarters of 2021.
- Complete evaluation of analytical data from monitoring wells.
- If an SSL is identified, identify and evaluate potential alternate sources (i.e. a source other than the CCR unit, an error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality).
 - If an alternate is identified to be the cause of an SSL, a written document will be prepared and included in the 2021 Corrective Action Report.
 - If the CCR unit is identified to be the cause of an SSL, applicable requirements of assessment of corrective action per 40 CFR §257.94 through 257.98 for 2020 will be performed including notification and recordkeeping requirements per 40 CFR §257.105 through 257.108.

References

Natural Resource Technology, an OBG Company (NRT/OBG), 2017a. Sampling and Analysis Plan, Havana East Ash Pond (Cells 1, 2, 3, and 4), Havana Power Station, Havana, Illinois, Project No. 2285, Revision 0, October 17, 2017.

Natural Resource Technology, an OBG Company (NRT/OBG), 2017b. Statistical Analysis Plan, Baldwin Energy Complex, Havana Power Station, Hennepin Power Station, Wood River Power Station, Dynegy Midwest Generation, LLC, October 17, 2017.

Ramboll, 2019 Annual Groundwater Monitoring and Corrective Action Report, Havana East Ash Pond (Cells 1,2,3 and 4), Havana Power Station, January 31, 2020.

Tables

Table 1
Statistical Background Values
2020 Annual Groundwater Monitoring and Corrective Action Report
Havana East Ash Pond

Parameter	Statistical Background Value (UPL)
40 CFR Part 257 Appendix III	
Boron (mg/L)	0.0095
Calcium (mg/L)	75.6
Chloride (mg/L)	18
Fluoride (mg/L)	DQR ¹
pH (mg/L)	6.7 / 8.3
Sulfate (mg/L)	26
Total Dissolved Solids (mg/L)	324

Notes:

UPL = upper prediction limit

DQR = double quantification rule

mg/L = milligrams per liter

SU = standard units

¹ All upgradient results are non-detect values

Table 2
Groundwater Protection Standards
2020 Annual Groundwater Monitoring and Corrective Action Report

Parameter	Groundwater Protection Standard ¹
40 CFR Part 257 Appendix IV	
Antimony (mg/L)	0.006
Arsenic (mg/L)	0.1
Barium (mg/L)	2
Beryllium (mg/L)	0.004
Cadmium (mg/L)	0.005
Chromium (mg/L)	0.1
Cobalt (mg/L)	0.006
Fluoride (mg/L)	4
Lead (mg/L)	0.15
Lithium (mg/L)	0.04
Mercury (mg/L)	0.002
Molybdenum (mg/L)	0.1
Radium 226+228 (pCi/L)	5
Selenium (mg/L)	0.05
Thalium (mg/L)	0.002

Notes:

mg/L = milligrams per liter

pCi/L = picoCuries per liter

1 Groundwater Protection Standard is higher than maximum containment, health-based, or background.

Table 3
Analytical Results
Groundwater Elevation and Parameters
2020 Annual Groundwater Monitoring and Corrective Action Report
Havana East Ash Pond

Well Identification - Number	Latitude (Decimal Degrass)	Longitude (Decimal Degrass)	Date Sampled	Depth to Groundwater ¹ (ft)	Groundwater Elevation (ft msl)	40 CFR Part 257 Apendix III						
						Boron, total (mg/L) 6020 ²	Calcium, total(mg/L) 6020 ²	Chloride, total (mg/L) 9251 ²	Fluoride, total (mg/L) SW9214 ²	pH (field) (SU) SM 4500 H+B ²	Sulfate, total (mg/L) 9036 ²	Total Dissolved Solids (mg/L) SM 2540C ²
Background / Upgradient Monitoring wells												
HAMW-30	40.274750	-90.066301	2/12/2020	14.4	458.5	0.0306	49.4	15	<0.1	7.94	19	250
			8/20/2020	14.1	458.8	0.0396	48	12	<0.1	7.89	16	210
HAMW-31	40.279920	-90.066174	2/12/2020	37.57	455.82	0.056	63.5	8	<0.1	7.55	16	284
			8/20/2020	36.54	456.85	0.0878	73.1	13	<0.1	7.38	29	274
Downgradient Monitoring wells												
HAMW-32	40.281797	-90.074799	2/12/2020	9.05	446.45	0.0467	67.3	16	<0.1	7.47	19	300
			8/20/2020	10.6	444.9	0.0583	67.6	16	<0.1	7.54	23	264
HAMW-39	40.276874	-90.076729	2/12/2020	19.46	449.13	0.0476	65.6	16	<0.1	7.4	44	310
			8/20/2020	19.73	448.86	0.085	81.8	17	<0.1	7.6	64	342
HAMW-40	40.278983	-90.075954	2/12/2020	22.04	448.19	0.194	74.2	40	<0.1	7.48	51	368
			8/20/2020	22.75	447.48	0.237	77	34	<0.1	7.54	54	346
HAMW-41	40.282144	-90.070192	2/12/2020	17.25	450.7	0.0444	62.3	16	<0.1	7.65	46	306
			8/20/2020	17.21	450.74	0.0484	63.9	15	<0.1	7.66	48	272
HAMW-42	40.285392	-90.068354	2/12/2020	31.74	450.21	0.0559	74.6	12	<0.1	7.53	32	332
			8/20/2020	31.94	450.01	0.0577	72.2	10	<0.1	7.36	22	272

Notes:

- msl = mean sea-level
- mg/L = miligrams per liter
- ND = no data
- SU = standar unit
- pCi/L = pioCuries per liter
- < = actual concentration less than concentration shown
- 1 All groundwater depth measured on first day of event
- 2 Testing method

Table 3
Analytical Results
Groundwater Elevation and Parameters
2020 Annual Groundwater Monitoring and Corrective Action Report
Havana East Ash Pond

Well Identification - Number	Latitude (Decimal Degrass)	Longitude (Decimal Degrees)	Date Sampled	40 CFR Part 257 Appendix III														
				Antimony, total (mg/L) 6020A ²	Arsenic, total (mg/L) 6020A ²	Barium, total (mg/L) 6020A ²	Berylium, total (mg/L) 6020A ²	Cadmium, total (mg/L) 6020A ²	Chromium, total (mg/L) 6020A ²	Cobalt, total (mg/L) 6020A ²	Fluoride, total (mg/L) SW9214 ²	Lead, total (mg/L) 6020A ²	Lithium, total (mg/L) 6020A ²	Mercury, total (mg/L) 7470A ²	Molybdenum, total (mg/L) 6020A ²	Radium 226+228, combined (pCi/L) 903/904 ²	Selenium, total (mg/L) 6020A ²	Thalium, total (mg/L) 6020A ²
Background / Upgradient Monitoring wells																		
HAMW-30	40.274750	-90.066301	2/12/2020	<0.001	<0.001	0.0174	<0.001	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	<0.0002	<0.0015	0.39	<0.001	<0.002
			8/20/2020	ND	0.0011	0.0175	ND	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	ND	ND	0.45	<0.001	ND
HAMW-31	40.279920	-90.066174	2/12/2020	<0.001	<0.001	0.0231	<0.001	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	<0.0002	<0.0015	0.76	<0.001	<0.002
			8/20/2020	ND	<0.001	0.0294	ND	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	ND	ND	0.45	<0.001	ND
Downgradient Monitoring wells																		
HAMW-32	40.281797	-90.074799	2/12/2020	<0.001	<0.001	0.0192	<0.001	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	<0.0002	<0.0015	1.12	<0.001	<0.002
			8/20/2020	ND	<0.001	0.0201	ND	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	ND	ND	0.69	<0.001	ND
HAMW-39	40.276874	-90.076729	2/12/2020	<0.001	<0.001	0.0134	<0.001	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	<0.0002	<0.0015	1.01	0.0012	<0.002
			8/20/2020	ND	<0.001	0.0183	ND	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	ND	ND	0.84	0.0011	ND
HAMW-40	40.278983	-90.075954	2/12/2020	<0.001	<0.001	0.0248	<0.001	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	<0.0002	<0.0015	0.38	<0.001	<0.002
			8/20/2020	ND	<0.001	0.0253	ND	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	ND	ND	1.59	<0.001	ND
HAMW-41	40.282144	-90.070192	2/12/2020	<0.001	<0.001	0.0163	<0.001	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	<0.0002	<0.0015	1.68	<0.001	<0.002
			8/20/2020	ND	<0.001	0.018	ND	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	ND	ND	1.62	<0.001	ND
HAMW-42	40.285392	-90.068354	2/12/2020	<0.001	<0.001	0.0187	<0.001	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	<0.0002	<0.0015	2	<0.001	<0.002
			8/20/2020	ND	<0.001	0.0202	ND	<0.001	<0.0015	<0.0001	<0.1	<0.001	<0.003	ND	ND	0.71	<0.001	ND

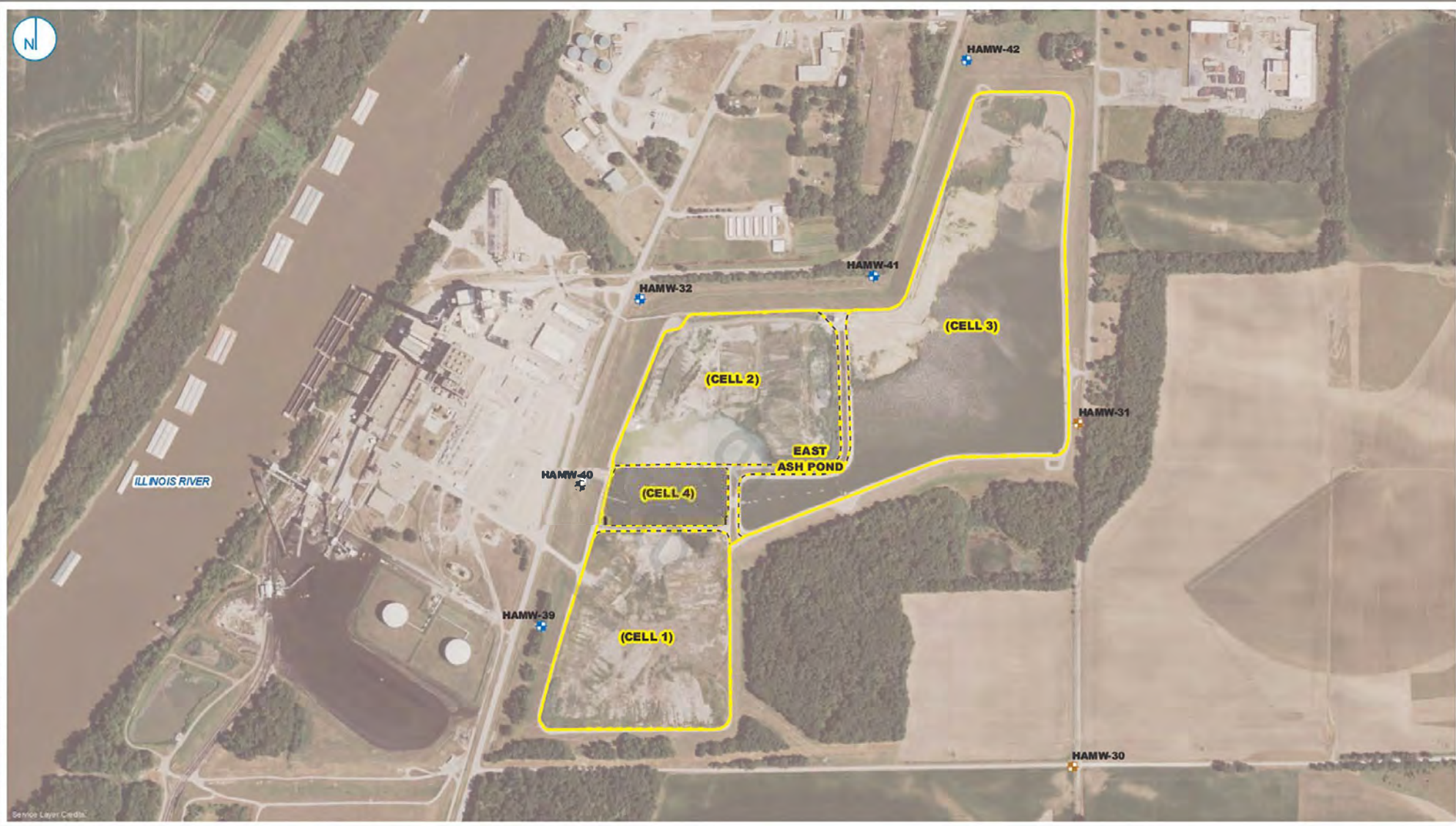
Notes:

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- mg/L = miligrams per liter
- ND = no data
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- 1 All groundwater depth measured on first day of event
- 2 Testing method

Table 4
Assessment Monitoring Program Summary
Annual Groundwater Monitoring and Corrective Action Report
Havan East Pond

Sampling Dates	Parameters Collected	SSL Determination(s)
First Quarter		
2/12/2020	Appendix III Appendix IV	None
Third Quarter		
8/20/2020	Appendix III Appendix IV	None

Figures



- UPGRADIENT MONITORING WELL LOCATION
- DOWNGRADIENT MONITORING WELL LOCATION
- CCR MONITORED MULTI-UNIT
- CCR UNIT

0 250 500
Feet

**MONITORING WELL LOCATION MAP
HAVANA EAST ASH POND CELLS 1, 2, 3, AND 4**

2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT
CCR RULE GROUNDWATER MONITORING
FINCO DEVELOPMENT, LLC
HAVANA, ILLINOIS

FIGURE 1



*REFERENCE RAMBOL 2019 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT