



# 2020 ANNUAL GROUNDWATER MONITORING AND CORRECTIVE ACTION REPORT

PRIMARY EAST ASH POND  
WOOD RIVER SITE  
1 CHESSEN LANE  
ALTON, ILLINOIS 62202

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EAST ASH POND COMPLEX  
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March 2021

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## 1.0 INTRODUCTION

In accordance with Code of Federal Regulation (CFR) requirements under 40 CFR 257.90(e), ATON Environmental Consulting and Engineering LLC (ATON) has prepared this report on behalf of CTI Development LLC (CTI) for the 2020 Wood River Primary East Ash Pond in Alton, Illinois. CTI took possession of the power station property on August 30, 2019 from Luminant/Dynegy Midwest Generation, LLC (DMG).

The owner or operator of an existing Coal Combustion Residuals (CCR) unit shall 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. The report should summarize key actions completed, describes any problems encountered, discusses actions to resolve the problems, and key activities for the upcoming year per 40 CFR § 257.90(e). The annual report will minimally cover the following site-specific information:

1. A drawing or diagram showing the CCR unit, the designated background (or up gradient), and designated down gradient monitoring wells.
2. Identification and discussion of any monitoring wells that were installed or decommissioned during the preceding year.
3. Provide a summary groundwater samples taken for the West Ash Pond Complex – including the number of groundwater samples collected for analysis at each of the designated background and downgradient wells, the dates collected, and whether the sample was required by the detection monitoring or assessment monitoring programs. Plus, the groundwater monitoring data obtained under 40 CFR 257.90 through 257.98.
4. A discussion of the groundwater monitoring program including:
  - a. Statistical analysis of groundwater data to identify constituents detected at a statistically significant increase over background levels.
  - b. The transition from detection groundwater monitoring to assessment monitoring of constituents identified in the statistical assessment.
5. Other information required to be included in the annual report as specified in 40 CFR 257.90 through 257.981.

## 2.0 MONITORING & CORRECTIVE ACTION PROGRAM STATUS

As referenced in the 2018 Annual Groundwater Monitoring and Corrective Action Report (NRT/OGB 2019), the Primary East Ash Pond has been in an Assessment Monitoring Program in accordance with 40 CFR 257.94(e)(2). DMG placed the required notification on April 9, 2019.

Assessment Monitoring sampling was continued in 2020 during the semi-annual sampling events under direction of ATON and CTI. Samples were collected from each of the Primary East Ash Pond designated upgradient and down gradient wells and analyzed for the Appendix III and Appendix IV parameters. The analytical data was evaluated in accordance with the statistical analysis plan (NRT/OBG 2017) provisions to determine if any statistically significant increases (SSIs) of the Appendix III parameters are above the background concentrations and if statistically significant levels (SSLs) of Appendix IV parameters are above the Groundwater Protections Standards (GWPSs).

The Primary East Ash Pond was continued to be sampled on a semi-annual schedule as outlined with the Groundwater Monitoring Plan (NRT/OBG Oct 2016). The Semi-annual sampling events were completed by Teklab Inc. (Teklab) on the following dates:

Q1 Sample Date	Q3 Sample Date
2/6/2020	8/12/2020

**Assessment Monitoring Program Summary  
 November 2017 – August 2020**

Well ID	Appendix III - SSIs		Appendix IV - SSLs	
	Trend	UCL Value	Trend	UCL Value
38	Only Boron with an Increasing Trend; All Other Trends are Statistically Insignificant	Only Boron Above Background	None	Molybdenum UCL Above GWPS
39S	Chloride, Sulfate, & TDS with a Decreasing Trend; All Other Trends are Statistically Insignificant	Boron, Calcium, Sulfate, & TDS Above Background	None	Molybdenum UCL Above GWPS
40S	Only Boron with a Decreasing Trend; All Other Trends are Statistically Insignificant	Boron, Calcium, Sulfate, & TDS Above Background	None	Lithium & Molybdenum UCL Above GWPS
41	Boron & Calcium with an Increasing Trend; All Other Trends are Statistically Insignificant	Boron, Calcium, Sulfate, & TDS Above Background	Only Lithium with an Increasing Trend; All Other Trends are Statistically Insignificant	Lithium UCL Above GWPS

The Statistical Background Values for the SSIs evaluation from Appendix III are summarized in Table A. The GWPSs for the SSLs evaluation from Appendix IV are summarized in Table B.

**Table A. Statistical Background Values**

Parameter	Statistical Background Value
<b>Appendix III</b>	
Boron (mg/L)	1.22
Calcium (mg/L)	180.516
Chloride (mg/L)	88
Fluoride (mg/L)	0.76
pH (S.U.)	6.61 / 7.23
Sulfate (mg/L)	203
TDS (mg/L)	863

**Notes:**

mg/L = milligrams per liter  
 S.U. = Standard Units  
 TDS = Total Dissolved Solids

**Table B. Groundwater Protection Standards**

Parameter	Groundwater Protection Standard
<b>Appendix IV</b>	
Antimony (mg/L)	0.006
Arsenic (mg/L)	0.0574
Barium (mg/L)	2
Beryllium (mg/L)	0.004
Cadmium (mg/L)	0.005
Chromium (mg/L)	0.10
Cobalt (mg/L)	0.006
Fluoride (mg/L)	4
Lead (mg/L)	0.015
Lithium (mg/L)	0.171
Mercury (mg/L)	0.002
Molybdenum (mg/L)	0.10
Selenium (mg/L)	0.05
Thallium (mg/L)	0.002
Radium 226+228 (pCi/L)	5

**Notes:**

mg/L = milligrams per liter  
 pCi/L = picoCuries per liter

### **3.0 ACTIONS COMPLETED IN 2020**

As previously noted, semi-annual groundwater sampling events were completed for the East Ash Pond Complex in 2019 under the Assessment Monitoring Program. A summary of the analytical data and statistical analyses are found in Appendix B – Tables 1 through 4. A statistical summary per well location is found in Appendix C.

Appendix A – Figure 1 displays the designated well system for the West Ash Pond Complex.

### **4.0 PROBLEMS ENCOUNTERED & CORRECTIVE ACTIONS**

Performance and assessment of the of the designated well system for the Primary East Ash Pond encounter no issues during 2020. Guidelines of the Sampling and Analysis Plan (NRT/OGB, 2017) were followed during the collection and analysis of the representative samples.

### **5.0 2020 PLANNED ACTIONS**

The following actions are planned for 2021:

- The continuation of Assessment Monitoring Program of the Primary East Ash Pond with semi-annual sampling events.
- The continuation of statistical evaluation of the collected analytical data from the from the designated groundwater well system to determine if any SSLs for Appendix IV parameters has occurred.
- If an SSL has been identified, an assessment of “potential alternative sources” will be completed. A “potential alternative source” is one other than the referenced CCR unit that could have caused the SSL or the SSL resulted from an error in one of the following processes: sample collection, sample analysis, statistical evaluation, or a possible variation/change in the groundwater systems quality.
  - If an alternative source is determined to be the cause of the SSL, a documented demonstration will be completed within 90 days, after the SSL discovery, and included within the Groundwater Monitoring and Corrective Action report pertaining to that year.



- If an alternative source is not determined to be the cause of the SSL, the procedure and requirements within 40 CFR 257.94 – 257.98 as applicable will be met. This also includes completion of the appropriate notifications required by 40 CFR 257.105 – 108.

## 6.0 REFERENCES

AECOM, November 28, 2016. Closure and Post-Closure Care Plan for the Wood River West Ash Complex at Dynegy Midwest Generation, LLC., Wood River Power Station.

Natural Resource Technology, Inc. (NRT), October 19, 2016. Groundwater Monitoring Plan, West Ash Pond Complex, Wood River Power Station, Alton, Illinois.

USEPA, April 17, 2015. 40 CFR Parts 257 and 261. Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals from Electric Utilities; Final Rule



**APPENDIX A**



**FIGURES**





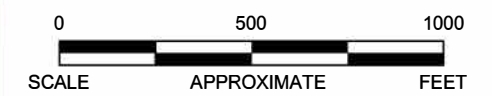
**LEGEND**


-  UPGRADIENT MONITORING MONITORING WELL LOCATION
-  DOWNGRADIENT MONITORING WELL LOCATION

-  EAST IMPOUNDMENT
-  PROPERTY BOUNDARY (BASED ON 1997 SURVEY DATA)

**Notes:**

1. Figure base map modified after Natural Resource Technology, 2017.
2. Reference elevation data developed by others, 2015.
3. Field and analytical data provided by Teklabs, 2019.
4. Soil boring/well installations provided by various contractors, 1994-2004.
5. Well locations are approximate.





**ATON**

FIGURE 1

GROUNDWATER WELL SAMPLING LOCATION MAP Designated Wells for Primary East Ash Pond

2020 Annual Groundwater Monitoring and Corrective Action Report CTI Development LLC

Former Wood River Power Plant - Alton, IL

DESIGN: DB	DRAWN: LMC	CHKD.: DB
DATE: 04/07/2020	SCALE: AS SHOWN	REV.:
W.O.NO.: ATONWOOD RIVERFIG 1 GW WELL SAMP LOC MAP EAST POND		



**APPENDIX B**

**TABLES**

**TABLE 1**  
**Summary of Analytical Analyses - Appendix III**  
**Primary East Ash Pond**

Sample Location	Date Sampled	Boron (mg/L)	Calcium (mg/L)	Chloride (mg/L)	Fluoride (mg/L)	pH (S.U.)	Sulfate (mg/L)	TDS (mg/L)
	<b>Background values</b>	<b>1.22</b>	<b>180.516</b>	<b>88</b>	<b>0.76</b>	<b>6.61 / 7.23</b>	<b>203</b>	<b>863</b>
<b>Background / Upgradient Monitoring Wells</b>								
21	5/2/2018	0.40	128.00	5.00	0.18	6.40	69.00	456.00
	7/31/2018	0.33	106.00	<5	0.18	6.90	57.00	448.00
	2/18/2019	0.42	117.00	4.00	0.19	6.95	63.00	470.00
	9/19/2019	0.17	94.80	2.00	0.20	6.79	40.00	394.00
	2/6/2020	0.31	117.00	4.00	0.18	7.02	63.00	474.00
	2/6/2020 (Dup)	0.31	117.00	4.00	0.17	7.02	63.00	452.00
	8/12/2020	0.21	105.00	1.00	0.18	6.92	42.00	382.00
8/12/2020 (Dup)	0.26	105.00	1.00	0.19	6.92	43.00	380.00	
37	5/2/2018	0.62	134.00	45.00	0.54	6.50	99.00	644.00
	7/31/2018	0.48	163.00	11.00	0.50	6.70	69.00	528.00
	2/18/2019	0.44	129.00	6.00	0.44	6.17	50.00	524.00
	9/19/2019	0.41	136.00	6.00	0.39	6.56	56.00	548.00
	2/6/2020	0.446	156.00	10.00	0.34	6.86	90.00	588.00
8/12/2020	0.427	154.00	4.00	0.35	6.94	66.00	514.00	
<b>Downgradient Monitoring Wells</b>								
38	11/2/2017	1.18	69.40	44.00	<0.1	7.60	80.00	384.00
	5/2/2018	3.12	94.10	43.00	0.30	6.70	130.00	500.00
	7/31/2018	2.69	102.00	45.00	0.31	7.20	94.00	438.00
	2/18/2019	3.08	103.00	44.00	0.31	6.57	105.00	508.00
	9/19/2019	3.12	92.10	38.00	0.33	7.20	94.00	472.00
	2/6/2020	3.41	98.40	42.00	0.30	7.37	111.00	472.00
8/12/2020	3.88	106.00	50.00	0.32	7.50	124.00	440.00	
39S	11/2/2017	59.40	212.00	<5	0.48	7.50	481.00	1050.00
	5/2/2018	51.20	241.00	5.00	0.46	6.50	515.00	1080.00
	7/31/2018	61.10	344.00	<5	0.40	6.80	509.00	1150.00
	2/18/2019	61.00	222.00	2.00	0.41	6.45	434.00	1080.00
	9/19/2019	55.20	210.00	3.00	0.46	6.63	333.00	984.00
	2/6/2020	53.60	216.00	3.00	0.50	6.92	416.00	906.00
8/12/2020	52.80	199.00	2.00	0.64	7.23	395.00	850.00	
40S	11/3/2017	25.10	236.00	10.00	0.14	7.60	548.00	1040.00
	5/2/2018	18.80	259.00	14.00	0.20	6.30	408.00	1140.00
	7/31/2018	27.30	360.00	10.00	0.10	7.10	604.00	1210.00
	2/18/2019	27.40	250.00	13.00	0.11	6.73	470.00	1050.00
	9/19/2019	24.80	247.00	13.00	0.13	6.89	513.00	1050.00
	2/6/2020	24.70	292.00	15.00	0.12	7.07	658.00	1140.00
8/12/2020	23.50	264.00	15.00	0.13	7.38	517.00	1040.00	
41	11/3/2017	8.07	293.00	18.00	0.15	7.50	642.00	1340.00
	5/2/2018	10.40	324.00	12.00	0.14	6.30	940.00	1620.00
	7/31/2018	10.10	441.00	22.00	0.14	7.00	1000.00	1800.00
	2/18/2019	11.10	349.00	17.00	0.14	6.98	847.00	1670.00
	9/19/2019	13.70	415.00	15.00	0.14	6.74	892.00	1820.00
	2/6/2020	12.60	384.00	16.00	0.13	6.98	858.00	1530.00
8/12/2020	13.00	473.00	17.00	0.14	7.09	1130.00	1830.00	

**TABLE 2**  
**Summary of Analytical Analyses - Appendix IV**  
**Primary East Ash Pond**

Sample Location	Date Sampled	Sb, total (mg/L)	As, total (mg/L)	Ba, total (mg/L)	Be, total (mg/L)	Cd, total (mg/L)	Cr, total (mg/L)	Co, total (mg/L)	F, total (mg/L)	Pb, total (mg/L)	Li, total (mg/L)	Hg, total (mg/L)	Mo, total (mg/L)	Ra 226/228 Combined (pCi/L)	Se, total (mg/L)	Tl, total (mg/L)
<b>GWPS</b>		0.006	0.01	2	0.004	0.005	0.1	0.006	4	0.015	0.0409	0.002	0.1	5	0.05	0.002
<b>Background / Upgradient Monitoring Wells</b>																
21	5/2/2018	0.001	0.0023	0.204	<0.001	0.001	<0.0015	0.001	0.18	<0.001	0.0117	<0.0002	0.0015	1.50	0.0021	<0.002
	7/31/2018	<0.001	0.0023	0.176	NA	<0.001	NA	<0.001	0.18	NA	0.0093	<0.0002	<0.0015	0.17	<0.001	NA
	2/18/2019	0.0005	0.0021	0.177	<0.001	<0.001	0.001	0.0001	0.19	<0.001	0.0111	<0.0002	0.0007	0.39	0.0008	<0.002
	9/19/2019	<0.001	0.0017	0.204	<0.001	<0.001	0.0014	0.0001	0.20	<0.001	0.0081	<0.0002	<0.0015	0.25	0.0021	<0.002
	2/6/2020	<0.001	0.0017	0.296	<0.001	0.0002	<0.0015	0.0003	0.18	<0.001	0.0105	<0.0002	<1.5	2.00	0.0012	<0.002
	2/6/2020 (Dup)	<0.001	0.0017	0.304	<0.001	0.0004	<0.0015	0.0005	0.17	<0.001	0.0101	<0.0002	0.60	NA	0.0009	<0.002
	8/12/2020	<0.001	0.0019	0.221	<0.001	0.0002	0.0016	0.0002	0.18	<0.001	0.0095	<0.0002	<1.5	NA	0.0018	<0.002
	8/12/2020 (Dup)	<0.001	0.0019	0.215	<0.001	<0.001	0.0013	<0.001	0.19	<0.001	0.0089	<0.0002	<1.5	NA	0.0017	<0.002
37	5/2/2018	<0.001	0.001	0.106	<0.001	<0.001	<0.0015	0.001	0.54	<0.001	0.0315	<0.0002	0.0034	1.59	<0.001	<0.002
	7/31/2018	<0.001	<0.001	0.121	NA	<0.001	NA	<0.001	0.50	NA	0.0251	<0.0002	0.0034	0.00	<0.001	NA
	2/18/2019	<0.001	<0.001	0.0938	<0.001	<0.001	<0.0015	0.0001	0.44	<0.001	0.0276	<0.0002	0.0025	0.42	<0.001	<0.002
	9/19/2019	<0.001	<0.001	0.0925	<0.001	0.0002	<0.0015	0.0001	0.39	<0.001	0.0281	<0.0002	0.0023	0.14	<0.001	<0.002
	2/6/2020	<0.001	<0.001	0.103	<0.001	<0.001	<0.0015	<0.001	0.34	<0.001	0.0346	<0.0002	0.0017	<0.002	0.0006	<0.002
	8/12/2020	<0.001	<0.001	0.0958	<0.001	0.0003	<0.0015	<0.001	0.35	<0.001	0.0333	<0.0002	0.0025	NA	<0.001	<0.002
<b>Downgradient Monitoring Wells</b>																
38	5/2/2018	<0.001	<0.001	0.151	<0.001	<0.001	<0.0015	<0.001	0.30	<0.001	0.0135	<0.0002	0.076	1.23	<0.001	<0.002
	7/31/2018	<0.001	<0.001	0.167	NA	<0.001	NA	<0.001	0.31	NA	0.0135	<0.0002	0.128	0.53	<0.001	NA
	2/18/2019	<0.001	<0.001	0.165	<0.001	<0.001	<0.0015	0.0001	0.31	<0.001	0.0161	<0.0002	0.105	0.50	<0.001	<0.002
	9/19/2019	<0.001	<0.001	0.145	<0.001	<0.001	<0.0015	0.0001	0.33	<0.001	0.0149	<0.0002	0.116	0.70	<0.001	<0.002
	2/6/2020	<0.001	<0.001	0.149	<0.001	<0.001	<0.0015	0.0001	0.30	<0.001	0.0153	<0.0002	0.112	<2	<0.001	<0.002
	8/12/2020	<0.001	<0.001	0.155	<0.001	<0.001	<0.0015	<0.001	0.32	<0.001	0.017	<0.0002	0.119	NA	<0.001	<0.002
39S	5/2/2018	<0.001	0.0014	0.0317	<0.001	0.001	<0.0015	0.001	0.46	<0.001	0.0138	<0.0002	0.931	1.90	<0.001	<0.002
	7/31/2018	<0.001	0.002	0.0496	NA	<0.001	NA	0.0012	0.40	NA	0.0129	<0.0002	1.05	0.07	<0.001	NA
	2/18/2019	0.0005	0.0013	0.0327	<0.001	0.0005	0.0015	0.0011	0.41	<0.001	0.0135	<0.0002	0.732	0.39	<0.001	<0.002
	9/19/2019	0.0005	0.0015	0.0382	<0.001	0.0004	<0.0015	0.0015	0.46	<0.001	0.0106	<0.0002	0.704	0.26	<0.001	<0.002
	2/6/2020	<0.001	0.0014	0.0394	<0.001	0.0005	<0.0015	0.0014	0.50	<0.001	0.012	<0.0002	1.11	<2	<0.001	<0.002
	8/12/2020	<0.001	0.0013	0.0326	<0.001	0.0006	<0.0015	0.0014	0.64	<0.001	0.0103	<0.0002	1.4	NA	<0.001	<0.002
40S	5/2/2018	0.0011	0.001	0.104	<0.001	0.001	<0.0015	0.0016	0.20	<0.001	0.026	0.00025	0.0925	0.88	0.0039	<0.002
	7/31/2018	0.0021	0.001	0.113	NA	<0.001	NA	0.0012	0.10	NA	0.0599	<0.0002	0.195	0.56	0.0062	NA
	2/18/2019	0.001	0.0013	0.0669	<0.001	0.0003	0.0006	0.0007	0.11	<0.001	0.0335	<0.0002	0.189	0.55	0.004	<0.002
	9/19/2019	0.0008	0.0015	0.0606	<0.001	0.0003	<0.0015	0.0008	0.13	<0.001	0.0272	<0.0002	0.162	0.52	0.0071	<0.002
	2/6/2020	0.0005	0.0028	0.0755	<0.001	0.0002	<0.0015	0.001	0.12	<0.001	0.0304	<0.0002	0.157	<2	0.0019	<0.002
	8/12/2020	0.0006	0.0034	0.0704	<0.001	0.0003	<0.0015	0.0014	0.13	<0.001	0.0228	<0.0002	0.0765	NA	0.0008	<0.002
41	5/2/2018	<0.001	<0.001	0.0296	<0.001	0.001	<0.0015	0.001	0.14	<0.001	0.0288	<0.0002	0.036	0.43	0.001	<0.002
	7/31/2018	<0.001	<0.001	0.0327	NA	<0.001	NA	<0.001	0.14	NA	0.0366	<0.0002	0.0506	0.00	0.002	NA
	2/18/2019	<0.001	<0.001	0.0288	<0.001	<0.001	0.0007	0.0002	0.14	0.0002	0.0385	<0.0002	0.0361	0.57	0.0013	<0.002
	9/19/2019	<0.001	<0.001	0.0242	<0.001	<0.001	<0.0015	0.0001	0.14	<0.001	0.0441	<0.0002	0.0313	0.37	0.0011	<0.002
	2/6/2020	<0.001	<0.001	0.0218	<0.001	<0.001	<0.0015	0.0001	0.13	<0.001	0.0429	<0.0002	0.0353	<2	<0.001	<0.002
	8/12/2020	<0.001	<0.001	0.0229	<0.001	<0.001	<0.0015	<0.001	0.14	<0.001	0.0503	<0.0002	0.0353	NA	<0.001	<0.002