

ANNUAL GROUNDWATER MONITORING AND
CORRECTIVE ACTION REPORT
EAST ASH POND
F.B. CULLEY GENERATING STATION
WARRICK COUNTY, INDIANA

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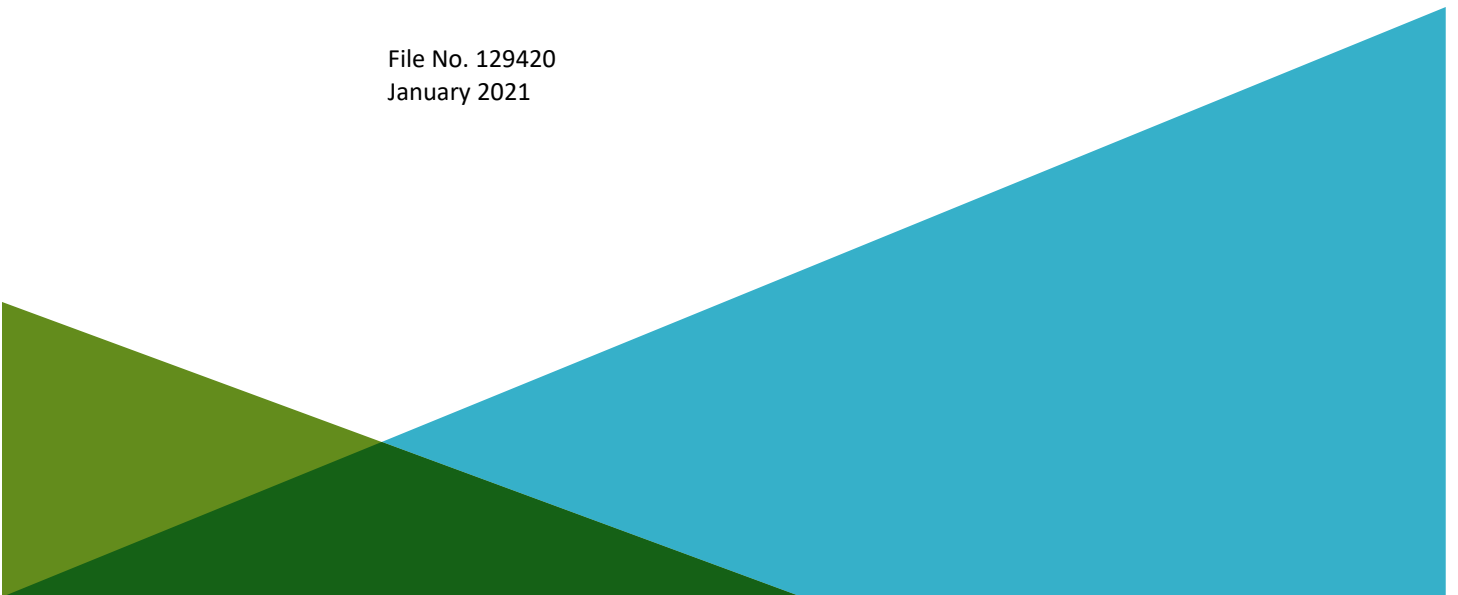


Table of Contents

	Page
List of Tables	ii
List of Figures	ii
1. Annual Groundwater Monitoring Report Summary	1
1.1 40 CFR § 257.90(e)(6) SUMMARY	1
1.1.1 40 CFR § 257.90(e)(6)(i) – Status of Monitoring Program at Start of Reporting Period	1
1.1.2 40 CFR § 257.90(e)(6)(ii) – Status of Monitoring Program at End of Reporting Period	1
1.1.3 40 CFR § 257.90(e)(6)(iii) – Statistically Significant Increases	1
1.1.4 40 CFR § 257.90(e)(6)(iv) – Statistically Significant Levels	2
1.1.5 40 CFR § 257.90(e)(6)(v) – Selection of Remedy	2
1.1.6 40 CFR § 257.90(e)(6)(vi) – Remedial Activities	3
1.2 40 CFR § 257.90(a)	3
1.3 40 CFR § 257.90(e) – SUMMARY	3
1.3.1 Status of the Groundwater Monitoring Program	3
1.3.2 Key Actions Completed	4
1.3.3 Problems Encountered	4
1.3.4 Actions to Resolve Problems	4
1.3.5 Project Key Activities for Upcoming Year	5
1.4 40 CFR § 257.90(e) – INFORMATION	5
1.4.1 40 CFR § 257.90(e)(1)	5
1.4.2 40 CFR § 257.90(e)(2)	5
1.4.3 40 CFR § 257.90(e)(3)	6
1.4.4 40 CFR § 257.90(e)(4)	6
1.4.5 40 CFR § 257.90(e)(5)	6

Tables
Figures

List of Tables

Table No.	Title
I	Groundwater Monitoring Well Location and Construction Details
II	Summary of Groundwater Quality Data

List of Figures

Figure No.	Title
1	Groundwater Monitoring Well Locations

1. Annual Groundwater Monitoring Report Summary

1.1 40 CFR § 257.90(e)(6) SUMMARY

A section at the beginning of the annual report that provides an overview of the current status of groundwater monitoring and corrective action programs for the CCR unit. At a minimum, the summary must specify all of the following:

1.1.1 40 CFR § 257.90(e)(6)(i) – Status of Monitoring Program at Start of Reporting Period

At the start of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in § 257.94 or the assessment monitoring program in §257.95;

At the start of the current annual reporting period (1 January 2020), The East Ash Pond was operating under an assessment monitoring program in compliance with 40 CFR § 257.95.

1.1.2 40 CFR § 257.90(e)(6)(ii) – Status of Monitoring Program at End of Reporting Period

At the end of the current annual reporting period, whether the CCR unit was operating under the detection monitoring program in §257.94 or the assessment monitoring program in §257.95;

At the end of the current annual reporting period (31 December 2020), the East Ash Pond was operating under an assessment monitoring program in compliance with 40 CFR § 257.95.

1.1.3 40 CFR § 257.90(e)(6)(iii) – Statistically Significant Increases

If it was determined that there was a statistically significant increase over background for one or more constituents listed in appendix III to this part pursuant to §257.94(e):

1.1.3.1 40 CFR § 257.90(e)(6)(iii)(A)

Identify those constituents listed in appendix III to this part and the names of the monitoring wells associated with such an increase; and

The East Ash Pond is operating under an assessment monitoring program; therefore, no statistical evaluations were conducted on appendix III constituents in 2020.

1.1.3.2 40 CFR § 257.90(e)(6)(iii)(B)

Provide the date when the assessment monitoring program was initiated for the CCR unit.

An assessment monitoring program was established on August 15, 2018 for the East Ash Pond to meet the requirements of 40 CFR § 257.95. The East Ash Pond remained in assessment monitoring in 2020.

1.1.4 40 CFR § 257.90(e)(6)(iv) – Statistically Significant Levels

If it was determined that there was a statistically significant level above the groundwater protection standard for one or more constituents listed in appendix IV to this part pursuant to §257.95(g) include all of the following:

1.1.4.1 40 CFR § 257.90(e)(6)(iv)(A) – Statistically Significant Level Constituents

Identify those constituents listed in appendix IV to this part and the names of the monitoring wells associated with such an increase;

Statistical analysis was completed in January 2020 (October 2019 event) and September 2020 (May 2020 event) as described in § 257.93(h)(2) and a statistically significant level (SSL) of molybdenum was identified downgradient of the East Ash Pond at monitoring well CCR-AP-5.

1.1.4.2 40 CFR § 257.90(e)(6)(iv)(B) – Initiation of the Assessment of Corrective Measures

Provide the date when the assessment of corrective measures was initiated for the CCR unit;

Assessment of corrective measures was initiated on 15 May 2019.

1.1.4.3 40 CFR § 257.90(e)(6)(iv)(C) – Assessment of Corrective Measures Public Meeting

Provide the date when the public meeting was held for the assessment of corrective measures for the CCR unit; and

The public meeting has not been held for the assessment of corrective measures for the Ash Pond. Evaluations of site-specific aspects that are necessary to prepare for the public meeting and inform the selection of remedy are in progress. The meeting is anticipated to be completed in 2021.

1.1.4.4 40 CFR § 257.90(e)(6)(iv)(D) – Completion of the Assessment of Corrective Measures

Provide the date when the assessment of corrective measures was completed for the CCR unit.

The assessment of corrective measures was completed on 13 September 2019 and placed into the facility's Operating Record, posted to the publicly available website, and the notification sent to the state agency.

1.1.5 40 CFR § 257.90(e)(6)(v) – Selection of Remedy

Whether a remedy was selected pursuant to §257.97 during the current annual reporting period, and if so, the date of remedy selection; and

The selection of remedy required under § 257.97 was ongoing in 2020 for molybdenum at the East Ash Pond. A summary of actions completed associated with selection of remedy are provided in the March 2020 and September 2020 Semi- Annual Remedy Selection Progress Reports.

1.1.6 40 CFR § 257.90(e)(6)(vi) – Remedial Activities

Whether remedial activities were initiated or are ongoing pursuant to §257.98 during the current annual reporting period.

No remedial activities have been initiated in 2020; therefore, no demonstration or certification is applicable for this unit.

1.2 40 CFR § 257.90(a)

Except as provided for in § 257.100 for inactive CCR surface impoundments, all CCR landfills, CCR surface impoundments, and lateral expansions of CCR units are subject to the groundwater monitoring and corrective action requirements under § 257.90 through § 257.98.

The East Ash Pond (EAP) at F.B. Culley Generating Station (FBC) is subject to the groundwater monitoring and corrective action requirements described under Code of Federal Regulations Title 40 (40 CFR) § 257.90 through § 257.98 (Rule). This document addresses the requirement for the Owner/Operator to prepare an Annual Groundwater Monitoring and Corrective Action Report per § 257.90(e).

1.3 40 CFR § 257.90(e) – SUMMARY

Annual groundwater monitoring and corrective action report. For existing CCR landfills and existing CCR surface impoundments, no later than January 31, 2018, and annually thereafter, the owner or operator must prepare an annual groundwater monitoring and corrective action report. For new CCR landfills, new CCR surface impoundments, and all lateral expansions of CCR units, the owner or operator must prepare the initial annual groundwater monitoring and corrective action report no later than January 31 of the year following the calendar year a groundwater monitoring system has been established for such CCR unit as required by this subpart, and annually thereafter. For the preceding calendar year, the annual report must document the status of the groundwater monitoring and corrective action program for the CCR unit, summarize key actions completed, describe any problems encountered, discuss actions to resolve the problems, and project key activities for the upcoming year. For purposes of this section, the owner or operator has prepared the annual report when the report is placed in the facility's operating record as required by § 257.105(h)(1).

This Annual Groundwater Monitoring and Corrective Action Report documents the activities completed in 2020 for the EAP as required by the Rule. Semiannual groundwater sampling and analysis was conducted per the requirements described in § 257.93, and the status of the groundwater monitoring program described in § 257.95 is provided in this report.

1.3.1 Status of the Groundwater Monitoring Program

Following completion of the Assessment of Corrective Measures in September 2019 annual and semi-annual groundwater sampling continued in May 2020 and November 2020 as outlined in § 257.95(b) and 257.95(d)(1). Statistical analysis was completed in January 2020 (November 2019 event) and September 2020 (May 2020 event) as described in § 257.93(h)(2) and the statistically significant levels (SSL) of molybdenum continue to be observed downgradient of the EAP consistent with previous results. In addition, the selection of remedy required under § 257.97 was ongoing in 2020.

1.3.2 Key Actions Completed

The following key actions were completed in 2020:

- Completed a statistical analysis of assessment monitoring results to evaluate potential SSLs;
- Prepared 2019 Annual Report including:
 - Pursuant to § 257.105(h)(1), the Annual Report was placed in the facility's operating record;
 - Pursuant to § 257.106(h)(1), the notification was sent to the relevant State Director and/or Tribal authority within 30 days of the Annual Report being placed in the facility's operating record [§ 257.106(d)];
 - Pursuant to § 257.107(h)(1), the Annual Report was posted to the Coal Combustion Residuals Website within 30 days of the Annual Report being placed in the facility's operating record [§ 257.107(d)] and 257.107(h)(1)];
- Evaluated the nature and extent of Appendix IV SSLs as required by § 257.95(g)(1);
- Collected and analyzed two rounds of groundwater samples in accordance with § 257.95;
- Prepared semiannual selection of remedy progress reports in March 2020 and September 2020 in accordance with § 257.97(a) to document progress. These semiannual progress reports were placed in the operating record as required by § 257.105(h)(12) and posted on the facility's publicly available website as required by § 257.107(h)(9).

1.3.3 Problems Encountered

Monitoring well (CCR-AP-10) was installed on the north side of the East Ash Pond in January 2019 to evaluate the nature and extent of arsenic and molybdenum in groundwater. The shale bedrock encountered at this location did not yield a sufficient amount of groundwater for sampling in May 2020 and November 2020.

1.3.4 Actions to Resolve Problems

A review of the boring log and construction information concluded that installing a deeper well would not correlate to the monitoring well network in the uppermost aquifer. Therefore the monitoring well will be properly abandoned in 2021.

1.3.5 Project Key Activities for Upcoming Year

Key activities to be completed in 2021 include the following:

- Further refine the characterization of the nature and extent of molybdenum in groundwater downgradient of the EAP.
- Continue semiannual groundwater monitoring in accordance with § 257.95.
- Complete statistical analysis of the semiannual groundwater sampling results as required by § 257.93(h)(2).
- Hold a public meeting with interested and affected parties in accordance with § 257.96(e) to discuss the results of the corrective measures assessment at least 30 days prior to the selection of remedy.
- As soon as feasible following the public meeting select a remedy that, at a minimum, meets the standards outlined in § 257.97(b).
 - As part of the selected remedy SIGECO will develop a schedule for implementing and completing remedial activities as defined in § 257.97(d).
- Prepare semiannual and annual progress reports, as necessary, describing the progress in selecting and designing the remedy as outlined in § 257.97(a).

1.4 40 CFR § 257.90(e) – INFORMATION

At a minimum, the annual groundwater monitoring and corrective action report must contain the following information, to the extent available:

1.4.1 40 CFR § 257.90(e)(1)

A map, aerial image, or diagram showing the CCR unit and all background (or upgradient) and downgradient monitoring wells, to include the well identification numbers, that are part of the groundwater monitoring program for the CCR unit;

As required by § 257.90(e)(1), a map showing the location of the EAP and associated upgradient, downgradient and nature and extent monitoring wells is presented as Figure 1.

1.4.2 40 CFR § 257.90(e)(2)

Identification of any monitoring wells that were installed or decommissioned during the preceding year, along with a narrative description of why those actions were taken;

Additional monitoring wells were not installed nor were any monitoring wells decommissioned in 2020. However, location and construction details are provided in Table I.

1.4.3 40 CFR § 257.90(e)(3)

In addition to all the monitoring data obtained under § 257.90 through § 257.98, a summary including the number of groundwater samples that were collected for analysis for each background and downgradient well, the dates the samples were collected, and whether the sample was required by the detection monitoring or assessment monitoring programs;

In accordance with § 257.95(b) and § 257.95(d)(1), two independent samples from each background and downgradient monitoring well were collected and analyzed. A summary table including the sample names, dates of sample collection, reason for sample collection (detection or assessment), and monitoring data obtained for the groundwater monitoring program for the EAP is presented in Table II of this report.

1.4.4 40 CFR § 257.90(e)(4)

A narrative discussion of any transition between monitoring programs (e.g., the date and circumstances for transitioning from detection monitoring to assessment monitoring in addition to identifying the constituent(s) detected at a statistically significant increase over background levels); and

Statistical analysis was completed in January 2020 (November 2019 event) and September 2020 (May 2020 event) as described in § 257.93(h)(2) and the SSLs of molybdenum continue to be observed downgradient of the EAP consistent with previous results. As a result, the monitoring program did not change and the EAP remained in assessment monitoring.

1.4.5 40 CFR § 257.90(e)(5)

Other information required to be included in the annual report as specified in § 257.90 through § 257.98.

Other information including development of groundwater protection standards, recording groundwater monitoring results in the operating record, and an evaluation of alternate sources is discussed in preceding sections.

TABLES

TABLE I
GROUNDWATER MONITORING WELL LOCATION AND CONSTRUCTION DETAILS
F.B. CULLEY GENERATING STATION - EAST ASH POND
NEWBURGH, INDIANA

Well	CCR Unit	Date Installed	Easting	Northing	Top of Pad Elevation (ft msl)	Top of Riser Elevation (ft msl)	Surface Grout (ft bgs)	Bentonite (ft bgs)	Sand Pack (ft bgs)	Screen Zone (ft bgs)	Screen Length (ft)	Well Radius (in)	Status
CCR-AP-1R	Background	March 2016	2883429.69	969939.69	438.50	441.64	1.0-51.0	51.0-53.0	53.0-65.0	55.00 - 65.00	10	2	Active
CCR-AP-7	Background	March 2016	2883090.34	970774.64	429.50	434.11	1.0-16.0	16.0-18.0	18.0-30.0	20.00 - 30.00	10	2	Active
CCR-AP-9	Background	February 2017	2883998.96	969768.61	445.58	448.69	1.0-56.0	56.0-58.0	58.0-70.0	60.00 - 70.00	10	2	Active
CCR-AP-2	East Ash Pond	December 2015	2884168.67	969117.52	394.40	393.97	1.0-30.5	30.5-32.5	32.5-45.0	36.00 - 46.00	10	2	Active
CCR-AP-3	East Ash Pond	December 2015	2883542.09	969007.98	395.10	394.54	1.0-31.0	31.0-32.8	32.8-45.0	35.00 - 45.00	10	2	Active
CCR-AP-4	East Ash Pond	December 2015	2883281.93	969641.70	395.40	394.91	1.0-19.7	19.7-22.5	23.0-35.5	25.50 - 35.50	10	2	Active
CCR-AP-5	East Ash Pond	December 2015	2884016.66	969379.68	394.80	394.32	1.0-28.6	28.6-30.6	30.6-44.0	34.00 - 44.00	10	2	Active
CCR-AP-5I	East Ash Pond	January 2019	2884022.40	969377.37	--	395.00	1.0-71.2	71.2-73.0	73.0-86.0	75.30 - 85.30	10	2	Active
CCR-AP-6	East Ash Pond	March 2016	2883285.03	969122.16	397.00	396.71	1.0-31.5	31.5-33.0	33.5-45.5	35.50 - 45.50	10	2	Active
CCR-AP-6I	East Ash Pond	November 2018	2883289.32	969119.72	--	397.20	1.0-60.7	60.7-62.7	62.7-64.7	34.70 - 74.70	10	2	Active
CCR-AP-8	East Ash Pond	February 2017	2883846.87	969046.03	394.15	393.83	1.0-31.5	31.5-33.0	33.5-45.5	35.50 - 45.50	10	2	Active
CCR-AP-8I	East Ash Pond	November 2018	2883853.25	969047.00	--	393.90	1.0-53.7	53.7-56.7	56.7-69.0	58.70 - 68.70	10	2	Active
CCR-AP-10	East Ash Pond	January 2019	2883772.84	969536.11	--	402.40	1.0-36.5	36.5-38.0	38.0-50.5	40.20 - 50.20	10	2	Active
CCR-AP-11	East Ash Pond	January 2019	2884485.51	969352.71	--	385.10	1.0-40.0	40.0-41.8	41.8-54.7	44.40 - 54.40	10	2	Active

NOTES:

bgs = below ground surface

--- = was not surveyed

ft = feet

in = inches

msl = mean sea level

Datum of Elevations in NAVD 88

TABLE II
 SUMMARY OF GROUNDWATER QUALITY DATA
 EAST ASH POND
 F.B. CULLEY GENERATING STATION
 NEWBURGH, INDIANA

Location Group Location Name Sample Name Sample Date Lab Sample ID	Action Level Maximum Contaminant Level	Background					
		CCR-AP-7 CCR-AP-7-20200518 05/18/2020 180-106111-9	CCR-AP-7 CCR-AP-7-20201112 11/12/2020 180-113688-9	CCR-AP-1R CCR-AP-1-20200519 05/19/2020 180-106111-1	CCR-AP-1R CCR-AP-1R-20201113 11/13/2020 180-113688-1	CCR-AP-9 CCR-AP-9-20200519 05/19/2020 180-106111-12	CCR-AP-9 CCR-AP-9-20201113 11/13/2020 180-113688-12
Detection Monitoring - EPA Appendix III Constituents (mg/L)							
Boron, Total	NA	0.12	0.12 U	0.74	0.77	0.55 J+	0.53 J+
Calcium, Total	NA	130	110	64	57	120	150
Chloride	NA	28	29	17	18	9.7	11
Fluoride	4	0.29	0.33	0.52	0.5	0.37	0.39
Sulfate	NA	76	78 J+	180	220 J+	120	140 J+
Total Dissolved Solids (TDS)	NA	650	510	980	850	650	640
pH (lab) (SU)	NA	7.5 J	7.5 J	7.8 J	8 J	7.5 J	7.6 J
Assessment Monitoring - EPA Appendix IV Constituents (mg/L)							
Antimony, Total	0.006	0.00083 J	0.002 U	0.002 J	0.001 J	0.00069 J	0.0017 J
Arsenic, Total	0.01	0.015	0.0062	0.025	0.0086	0.0055	0.02
Barium, Total	2	0.19	0.13	0.3	0.094	0.19	0.39
Beryllium, Total	0.004	0.00027 J	0.001 U	0.0043 J	0.00077 J	0.00058 J	0.0017
Cadmium, Total	0.005	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.0004 J
Chromium, Total	0.1	0.0062	0.002 U	0.084	0.018	0.011	0.039
Cobalt, Total	0.006	0.0049	0.00021 J	0.048	0.01	0.008	0.023
Fluoride	4	0.29	0.33	0.52	0.5	0.37	0.39
Lead, Total	0.015	0.006	0.001 U	0.05	0.011	0.0066 J+	0.025
Lithium, Total	0.04	0.018	0.0099	0.13	0.052	0.037	0.06
Mercury, Total	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	0.1	0.002 J	0.0011 J	0.0096 J	0.0073	0.0028 J	0.004 J
Selenium, Total	0.05	0.0028 J	0.005 U	0.025	0.005 U	0.0037 J	0.005 U
Thallium, Total	0.002	0.001 U	0.001 U	0.005 U	0.001 U	0.001 U	0.001 U
Radiological (pCi/L)							
Radium-226	NA	0.0602 U ± 0.147	0.0646 U ± 0.223	1.47 ± 0.35	1.09 ± 0.542	1.22 ± 0.411	1.08 ± 0.57
Radium-228	NA	0.242 U ± 0.611	0.0611 U ± 0.291	1.34 U ± 0.599	0.833 ± 0.488	0.795 U ± 0.684	1.08 ± 0.546
Radium-226 & 228	NA	0.302 U ± 0.628	0.126 U ± 0.367	2.81 J+ ± 0.694	1.92 ± 0.729	2.01 J ± 0.798	2.16 ± 0.789
Field Parameters							
Temperature (Deg C)	NA	16.96	16.88	16.41	11.47	18.23	9.69
Dissolved Oxygen, Field (mg/L)	NA	0.05	0.49	1.37	6.07	4.09	7.87
Conductivity, Field (mS/cm)	NA	1.004	0.98477	1.3261	2.4233	1.0932	1.5225
ORP, Field (mv)	NA	-129.6	-85.4	-33.7	-54.1	-8.2	-104
Turbidity, Field (NTU)	NA	23.16	0	1938	2516.8	815.5	1336.9
pH, Field (SU)	NA	7.29	6.82	7.61	8.2	7.76	8.71

ABBREVIATIONS AND NOTES:

CCR: Coal Combustion Residuals.
 mg/L: milligram per liter.
 pCi/L: picoCurie per liter.
 SU: standard units.
 USEPA: United States Environmental Protection Agency.
 Results in **bold** are detected.

- USEPA. 2016. Final Rule: Disposal of Coal Combustion Residuals from Electric Utilities. July 26. 40 CFR Part 257.
<https://www.epa.gov/coalash/coal-ash-rule>

TABLE II
SUMMARY OF GROUNDWATER QUALITY DATA
EAST ASH POND
F.B. CULLEY GENERATING STATION
NEWBURGH, INDIANA

Location Group Location Name Sample Name Sample Date Lab Sample ID	Action Level Maximum Contaminant Level	Downgradient							
		CCR-AP-2 CCR-AP-2-20200520 05/20/2020 180-106111-2	CCR-AP-2 CCR-AP-2-20201112 11/12/2020 180-113688-2	CCR-AP-3 CCR-AP-3-20200520 05/20/2020 180-106111-3	CCR-AP-3 CCR-AP-3-20201113 11/13/2020 180-113688-3	CCR-AP-4 CCR-AP-4-20200520 05/20/2020 180-106111-4	CCR-AP-4 CCR-AP-4-20201113 11/13/2020 180-113688-4	CCR-AP-5 CCR-AP-5-20200519 05/19/2020 180-106111-5	CCR-AP-5 IND DUPLICATE-20200519 05/19/2020 180-106111-14
Detection Monitoring - EPA Appendix III Constituents (mg/L)									
Boron, Total	NA	12	0.8 U	0.24	0.16 J+	0.1	0.1 U	14	13
Calcium, Total	NA	260	220	180	200	130	170	170	170
Chloride	NA	230	210	24	26	16	28	73	76
Fluoride	4	0.35	0.32	0.36	0.28	0.64	0.26	1.4	1.5
Sulfate	NA	400	460 J+	2.2 J+	1.2 J+	6	1.2 J+	440	430
Total Dissolved Solids (TDS)	NA	1400	1700	950	970	660	840	1100	1100
pH (lab) (SU)	NA	6.9 J	7.5 J	7.4 J	7.6 J	6.8 J	7.1 J	7.5 J	7.5 J
Assessment Monitoring - EPA Appendix IV Constituents (mg/L)									
Antimony, Total	0.006	0.0021 J	0.0012 J	0.002 U	0.002 U	0.002 U	0.0011 J	0.002 U	0.002 U
Arsenic, Total	0.01	0.019	0.021	0.083	0.08	0.15	0.13	0.00073 J	0.00071 J
Barium, Total	2	0.24	0.26	0.42	0.43	0.57	0.63	0.059	0.058
Beryllium, Total	0.004	0.002 J	0.0022	0.001 U	0.001 U	0.001 U	0.00061 J	0.001 U	0.001 U
Cadmium, Total	0.005	0.005 U	0.0012	0.001 U	0.001 U	0.001 U	0.00037 J	0.001 U	0.00027 J
Chromium, Total	0.1	0.051	0.058	0.0029	0.0021	0.002 U	0.015	0.002 U	0.002 U
Cobalt, Total	0.006	0.031	0.034	0.0051	0.0049	0.0014	0.01	0.00036 J	0.00034 J
Fluoride	4	0.35	0.32	0.36	0.28	0.64	0.26	1.4	1.5
Lead, Total	0.015	0.043	0.035	0.0014 J+	0.001 U	0.0015 J+	0.014	0.001 U	0.001 U
Lithium, Total	0.04	0.036	0.043	0.005 U	0.005 U	0.0046 J	0.011	0.05	0.049
Mercury, Total	0.002	0.0002 U	0.00015 J	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	0.1	0.0057 J	0.0068	0.01	0.01	0.005 U	0.0028 J	0.21	0.21
Selenium, Total	0.05	0.016 J	0.0034 J	0.0019 J	0.0019 J	0.0018 J	0.005 U	0.0018 J	0.002 J
Thallium, Total	0.002	0.005 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Radiological (pCi/L)									
Radium-226	NA	0.355 ± 0.211	1.34 ± 0.64	0.770 ± 0.257	0.544 U ± 0.517	1.03 ± 0.328	0.628 U ± 0.614	0.113 U ± 0.137	0.194 ± 0.139
Radium-228	NA	0.581 U ± 0.555	0.114 U ± 0.5	0.252 U ± 0.408	0.248 U ± 0.46	0.395 U ± 0.63	0.778 U ± 0.685	0.254 U ± 0.54	0.0410 U ± 0.409
Radium-226 & 228	NA	0.936 J ± 0.594	1.46 J ± 0.812	1.02 J ± 0.482	0.792 U ± 0.692	1.43 J ± 0.71	1.41 ± 0.92	0.367 U ± 0.557	0.235 UJ ± 0.432
Field Parameters									
Temperature (Deg C)	NA	18.22	15.89	16.83	15.95	16.4	13.8	16.63	16.63
Dissolved Oxygen, Field (mg/L)	NA	4.79	1.5	3.85	4.78	2.83	6.21	0.16	0.16
Conductivity, Field (mS/cm)	NA	1.9069	2.5132	1.1803	1.8821	1.3146	1.886	1.292	1.292
ORP, Field (mv)	NA	-12.4	-7.4	-132.1	-139.8	-69.8	-107.8	43.4	43.4
Turbidity, Field (NTU)	NA	801.01	1192.4	0.04	199.88	220.36	427.94	0.47	0.47
pH, Field (SU)	NA	6.71	6.51	7.28	7.26	6.76	7.02	7.25	7.25

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<https://www.epa.gov/coalash/coal-ash-rule>

TABLE II
 SUMMARY OF GROUNDWATER QUALITY DATA
 EAST ASH POND
 F.B. CULLEY GENERATING STATION
 NEWBURGH, INDIANA

Location Group Location Name Sample Name Sample Date Lab Sample ID	Action Level Maximum Contaminant Level	Downgradient						
		CCR-AP-5 CCR-AP-5-20201113 11/13/2020 180-113688-5	CCR-AP-5 BLIND DUPLICATE-20201113 11/13/2020 180-113688-14	CCR-AP-5I CCR-AP-5I-20200519 05/19/2020 180-106111-6	CCR-AP-5I CCR-AP-5I-20201113 11/13/2020 180-113688-6	CCR-AP-6 CCR-AP-6-20200520 05/20/2020 180-106111-7	CCR-AP-6 CCR-AP-6-20201113 11/13/2020 180-113688-7	CCR-AP-6I CCR-AP-6I-20200519 05/19/2020 180-106111-8
Detection Monitoring - EPA Appendix III Constituents (mg/L)								
Boron, Total	NA	16	16	13	12	0.67	0.54 J+	19
Calcium, Total	NA	210	210	230	240	200	200	510
Chloride	NA	98	95	250	240	40	39	160
Fluoride	4	1.2	1.2	0.35	0.34	0.44	0.37	0.086 J
Sulfate	NA	560 J+	620 J+	670	690 J+	7.9	3.2 J+	1500
Total Dissolved Solids (TDS)	NA	1400	1300	1900	1700	950	1000	2300
pH (lab) (SU)	NA	7.4 J	7.5 J	7.1 J	7.1 J	7.5 J	7.6 J	7.4 J
Assessment Monitoring - EPA Appendix IV Constituents (mg/L)								
Antimony, Total	0.006	0.00044 J	0.002 U	0.002 U	0.002 U	0.00049 J	0.001 J	0.002 U
Arsenic, Total	0.01	0.0012	0.0012	0.00097 J	0.0007 J	0.11	0.1	0.0038
Barium, Total	2	0.073	0.074	0.09	0.08	0.63	0.57	0.036
Beryllium, Total	0.004	0.001 U	0.001 U	0.0002 J	0.001 U	0.00019 J	0.00023 J	0.001 U
Cadmium, Total	0.005	0.00057 J	0.00053 J	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, Total	0.1	0.0016 J	0.0016 J	0.0038	0.0018 J	0.0075	0.0098	0.002 U
Cobalt, Total	0.006	0.0014	0.0014	0.0022	0.00099	0.0052	0.0073	0.0018
Fluoride	4	1.2	1.2	0.35	0.34	0.44	0.37	0.086 J
Lead, Total	0.015	0.001 U	0.001 U	0.0026 J+	0.0011 U	0.0046	0.0065	0.0018 J+
Lithium, Total	0.04	0.067	0.066	0.043	0.041	0.0042 J	0.0052	0.05
Mercury, Total	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	0.1	0.34	0.33	0.0017 J	0.0012 J	0.024	0.02	0.77
Selenium, Total	0.05	0.005 U	0.005 U	0.0028 J	0.005 U	0.0021 J	0.0015 J	0.005 U
Thallium, Total	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Radiological (pCi/L)								
Radium-226	NA	0.0749 U ± 0.234	0.125 U ± 0.289	0.944 ± 0.369	0.572 ± 0.353	0.345 ± 0.189	0.351 U ± 0.301	0.212 U ± 0.209
Radium-228	NA	0.217 U ± 0.288	0.494 U ± 0.365	0.256 U ± 0.689	0.295 U ± 0.355	0.988 ± 0.571	-0.270 U ± 0.323	0.565 U ± 0.809
Radium-226 & 228	NA	0.292 U ± 0.371	0.619 ± 0.466	1.20 J ± 0.782	0.866 J ± 0.501	1.33 ± 0.601	0.351 U ± 0.442	0.776 U ± 0.836
Field Parameters								
Temperature (Deg C)	NA	16.06	16.06	16.95	16.88	17.38	17.27	18.13
Dissolved Oxygen, Field (mg/L)	NA	0.09	0.09	0.28	0.17	3.26	5.2	0.21
Conductivity, Field (mS/cm)	NA	1.7013	1.7013	2.48	2.3595	1.6714	1.8763	2.8202
ORP, Field (mv)	NA	192.8	192.8	-57.9	398.37	-94.7	-80.4	-37.2
Turbidity, Field (NTU)	NA	32.18	32.18	119.76	32.16	61.95	317.85	0.58
pH, Field (SU)	NA	6.88	6.88	6.99	6.68	7.51	7.07	7.25

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TABLE II
 SUMMARY OF GROUNDWATER QUALITY DATA
 EAST ASH POND
 F.B. CULLEY GENERATING STATION
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Location Group Location Name Sample Name Sample Date Lab Sample ID	Action Level Maximum Contaminant Level	Downgradient						
		CCR-AP-6I CCR-AP-6I-20201113 11/13/2020 180-113688-8	CCR-AP-8 CCR-AP-8-20200520 05/20/2020 180-106111-10	CCR-AP-8 CCR-AP-8-20201112 11/12/2020 180-113688-10	CCR-AP-8I CCR-AP-8I-20200519 05/19/2020 180-106111-11	CCR-AP-8I CCR-AP-8I-20201113 11/13/2020 180-113688-11	CCR-AP-11 CCR-AP-11-20200520 05/20/2020 180-106111-13	CCR-AP-11 CCR-AP-11-20201113 11/13/2020 180-113688-13
Detection Monitoring - EPA Appendix III Constituents (mg/L)								
Boron, Total	NA	18	0.1 U	0.099 U	12	13	0.21 J+	0.22 J+
Calcium, Total	NA	570	260	290	380	420	110	130
Chloride	NA	180	16	16	390	420	23	25
Fluoride	4	0.25 U	0.3	0.19	0.25 U	0.17 J	0.34	0.27
Sulfate	NA	1700 J+	2.4 J+	2.5 J+	960	970 J+	430	480 J+
Total Dissolved Solids (TDS)	NA	2500	1100	1300	2200	2400	840	890
pH (lab) (SU)	NA	7.4 J	7.3 J	7.3 J	7 J	6.9 J	6.7 J	6.7 J
Assessment Monitoring - EPA Appendix IV Constituents (mg/L)								
Antimony, Total	0.006	0.002 U	0.0004 J	0.0011 J	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic, Total	0.01	0.0039	0.11	0.12	0.0023	0.0023	0.048	0.059
Barium, Total	2	0.033	0.53	0.54	0.24	0.24	0.29	0.32
Beryllium, Total	0.004	0.001 U	0.00025 J	0.0003 J	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, Total	0.005	0.001 U	0.00028 J	0.00028 J	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, Total	0.1	0.002 U	0.0029	0.0047	0.002 U	0.002 U	0.002 U	0.002 U
Cobalt, Total	0.006	0.0016	0.0064	0.0078	0.00014 J	0.00017 J	0.03	0.039
Fluoride	4	0.25 U	0.3	0.19	0.25 U	0.17 J	0.34	0.27
Lead, Total	0.015	0.001 U	0.0017 J+	0.0025	0.001 U	0.001 U	0.001 U	0.001 U
Lithium, Total	0.04	0.055	0.005 U	0.005 U	0.37	0.41	0.005 U	0.005 U
Mercury, Total	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	0.1	0.8	0.013	0.02	0.28	0.31	0.00063 J	0.005 U
Selenium, Total	0.05	0.005 U	0.0032 J	0.0021 J	0.005 U	0.005 U	0.005 U	0.005 U
Thallium, Total	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Radiological (pCi/L)								
Radium-226	NA	0.178 U ± 0.226	0.572 ± 0.231	0.678 ± 0.475	0.887 ± 0.272	1.68 ± 0.495	0.255 ± 0.151	0.385 U ± 0.311
Radium-228	NA	0.489 U ± 0.323	0.519 U ± 0.449	1.19 ± 0.537	1.76 ± 0.583	1.04 ± 0.355	0.412 U ± 0.342	0.244 U ± 0.286
Radium-226 & 228	NA	0.668 ± 0.394	1.09 J ± 0.505	1.87 ± 0.717	2.64 ± 0.643	2.73 ± 0.609	0.666 J ± 0.374	0.629 ± 0.423
Field Parameters								
Temperature (Deg C)	NA	17.89	17.64	16.96	17.11	16.93	15.86	16.93
Dissolved Oxygen, Field (mg/L)	NA	0.29	2.29	4.77	0.27	0.26	0.27	0.14
Conductivity, Field (mS/cm)	NA	3.0798	2.0354	2.4316	3.1519	3.522	1.2642	1.3387
ORP, Field (mv)	NA	-16.7	-104.4	-135.9	-118.5	-89.3	-110.3	-84.6
Turbidity, Field (NTU)	NA	0.23	48.03	71.46	0.73	0.12	12.56	6.46
pH, Field (SU)	NA	7.01	6.97	6.85	6.95	6.76	6.8	6.44

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FIGURES

GIS FILE PATH: C:\Users\hwachholz\Documents\working\42796_EVANSVILLE\GIS\Maps\2021_011129420_001_0001_MONITORING_WELL_LOCATIONS_CULLEY.mxd — USER: hwachholz — LAST SAVED: 1/10/2020 2:01:30 PM

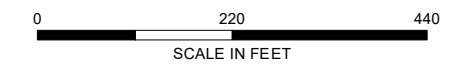


LEGEND

- CCR-AP-11  MONITORING WELL
- CCR-AP-6I  NATURE AND EXTENT MONITORING WELL
-  APPROXIMATE UNIT BOUNDARY
-  APPROXIMATE PROPERTY BOUNDARY

NOTES

1. ALL LOCATIONS ARE APPROXIMATE
2. CCR COAL COMBUSTION RESIDUALS
3. AERIAL IMAGERY SOURCE: ESRI



HALEY ALDRICH SOUTHERN INDIANA GAS AND ELECTRIC COMPANY
F.B. CULLEY GENERATING STATION
NEWBURGH, INDIANA

**GROUNDWATER MONITORING
WELL LOCATIONS**

JANUARY 2021

FIGURE 1