

ANNUAL GROUNDWATER MONITORING AND  
CORRECTIVE ACTION REPORT  
LANDFILL  
A.B. BROWN GENERATING STATION  
POSEY COUNTY, INDIANA

by  
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for  
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# 1. Annual Groundwater Monitoring Report Summary

## 1.1 CODE OF FEDERAL REGULATIONS TITLE 40 (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 2021), the Landfill at A.B. Brown Generating Station (ABB) 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 2021), the Landfill 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 Landfill was operating under an assessment monitoring program throughout 2021; therefore, no statistical evaluations were conducted on Appendix III constituents in 2021.

#### 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 15 August 2018 for the Landfill to meet the requirements of 40 CFR § 257.95. The Landfill has remained in assessment monitoring since that time.

#### 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 analyses were completed in 2021 following the November 2020 and May 2021 semiannual assessment monitoring events as described in § 257.93(h)(2). Statistically significant levels (SSLs) were not identified at any of the monitoring wells in 2021.

##### 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;***

An assessment of corrective measures has not been initiated for this unit since no SSLs were identified through year end 2021. The Landfill remained in assessment monitoring during 2021.

##### 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***

An assessment of corrective measures is not required and therefore has not been initiated for the Landfill through year end 2021; therefore, a public meeting was not held.

##### 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.***

An assessment of corrective measures has not been completed for this unit since no SSLs have been identified through year end 2021. The Landfill remained in assessment monitoring during 2021.

#### 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***

Since an assessment of corrective measures has not been required, the selection of remedy under § 257.97 is not required.

### 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.***

Remedial activities were not required in 2021; therefore, no demonstration or certification is applicable.

### 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 Landfill at ABB is subject to the groundwater monitoring and corrective action requirements described under 40 CFR § 257.90 through § 257.98 (Rule). The remainder of 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 2021 for the Landfill as required by the Rule. Semi-annual 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

Annual and semi-annual groundwater sampling continued in May 2021 and November 2021 as required by § 257.95(b) and 257.95(d)(1). Statistical analyses were completed within 90-days following completion of the sampling and analysis events as described in § 257.93(h)(2). Intrawell statistical analysis was used to evaluate cobalt, arsenic and lithium as a result of the Alternate Source Demonstration dated July 24, 2019. The results of the statistical analysis continued to demonstrate that

SSLs of Appendix IV constituents were not present in groundwater downgradient of the Landfill. Although SSLs were not present, some concentrations are above background, therefore in accordance with 257.95(f), the Landfill will continue with semiannual assessment monitoring.

### 1.3.2 Key Actions Completed

The following key actions were completed in 2021:

- Per the requirements of 257.93(c) of the Rule, static water level measurements were collected during each sampling event to evaluate groundwater flow direction and rate.
- Completed a statistical analyses of assessment monitoring results to evaluate potential SSLs;
- Prepared 2020 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 CCR Website within 30 days of the Annual Report being placed in the facility's operating record [§ 257.107(d) and 257.107(h)(1)];
- Collected and analyzed two rounds of groundwater samples in accordance with § 257.95(b) and § 257.95(d)(1).

### 1.3.3 Problems Encountered

Problems such as damaged wells, issues with sample collection or lack of sampling, or problems with laboratory analyses were not encountered at the ABB Landfill in 2021.

### 1.3.4 Actions to Resolve Problems

Actions to resolve problems were not required.

### 1.3.5 Project Key Activities for Upcoming Year

Key activities to be completed in 2022 include the following:

- Continue semiannual assessment monitoring in accordance with § 257.95.
- Complete statistical analyses of the semiannual groundwater sampling results as required by § 257.93(h)(2).

## 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 locations of the Landfill and associated upgradient and downgradient 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 during 2021. However, location and construction details of the existing monitoring well network for the Landfill is provided for reference as 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 Landfill 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***

The results of the statistical analyses for the November 2020 and May 2021 sampling events continued to demonstrate that SSLs of Appendix IV constituents were not present in groundwater downgradient of the Landfill. Although SSLs were not present, some concentrations are above background, therefore in accordance with 257.95(f), the Landfill will continue with semiannual 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 of groundwater monitoring results in the operating record, and an evaluation of alternate sources was discussed in prior annual reports.

## TABLES

**TABLE I**  
**GROUNDWATER MONITORING WELL LOCATION AND CONSTRUCTION DETAILS**  
A.B. BROWN GENERATING STATION - LANDFILL  
MOUNT VERNON, 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-LF-1	Landfill	March 2016	2771247.76	970812.18	432.80	435.63	0.0 - 3.0	3.0 - 7.0	7.0 - 19.0	9.00 - 19.00	10	2	Active
CCR-LF-2	Landfill	March 2016	2772205.05	970681.32	470.10	473.00	0.0 - 30.0	30.0 - 32.0	32.0 - 45.0	35.00 - 45.00	10	2	Active
CCR-LF-3	Landfill	March 2016	2773138.97	970949.70	482.00	484.75	0.0 - 21.0	21.0 - 23.0	23.0 - 35.0	25.00 - 35.00	10	2	Active
CCR-LF-4	Landfill	March 2016	2772876.83	972312.24	476.60	478.85	0.0 - 40.8	40.8 - 43.0	43.0 - 55.0	45.00 - 55.00	10	2	Active
CCR-LF-5	Landfill	March 2016	2772003.91	972228.16	427.50	430.41	0.0 - 16.0	16.0 - 18.0	18.0 - 30.0	20.00 - 30.00	10	2	Active
CCR-LF-6	Landfill	March 2016	2771046.15	972269.53	409.20	412.05	0.0 - 0.0	0.0 - 2.66	2.66 - 9.66	4.66 - 9.66	5	2	Active
CCR-BK-1R	Background	March 2016	2770919.08	974083.40	480.10	483.39	0.0 - 50.0	50.0 - 52.0	52.0 - 64.0	54.00 - 64.00	10	2	Active
CCR-BK-2	Background	March 2016	2769728.14	972854.33	427.50	430.60	0.0 - 11.5	11.5 - 13.5	13.5 - 25.5	15.50 - 25.50	10	2	Active

**Notes:**

bgs = below ground surface

ft = feet

in = inches

msl = mean sea level

Datum of Elevations in NAVD 88

**TABLE II**  
**SUMMARY OF GROUNDWATER QUALITY DATA**  
 A.B. BROWN GENERATION STATION  
 LANDFILL  
 MOUNT VERNON, INDIANA

Location Group Location Name Sample Name Sample Date Lab Sample ID	Action Level Maximum Contaminant Level/ Regional Screening Levels	Background			
		CCR-BK-1R CCR-BK-1R-20210519 05/19/2021 180-122065-13	CCR-BK-1R CCR-BK-1R-20211118 11/18/2021 180-130315-12	CCR-BK-2 CCR-BK-2-20210519 05/19/2021 180-122065-14	CCR-BK-2 CCR-BK-2-20211118 11/18/2021 180-130315-11
<b>Detection Monitoring - EPA Appendix III Constituents (mg/L)</b>					
Boron, Total	NA	<b>0.054 J</b>	0.08 UJ	<b>0.056 J</b>	0.08 UJ
Calcium, Total	NA	<b>53</b>	<b>47 J+</b>	<b>58</b>	<b>34 J+</b>
Chloride	NA	<b>6.6</b>	<b>7.2</b>	<b>12</b>	<b>18</b>
Fluoride	4	<b>0.33 J+</b>	<b>0.36</b>	<b>0.16 J+</b>	<b>0.19 J+</b>
pH (lab) (pH units)	NA	<b>6.5 J</b>	<b>7.5 J</b>	<b>6.8 J</b>	<b>7.3 J</b>
Sulfate	NA	<b>30</b>	<b>35</b>	<b>41</b>	<b>22</b>
Total Dissolved Solids (TDS)	NA	<b>320</b>	<b>300</b>	<b>330</b>	<b>250</b>
<b>Assessment Monitoring - EPA Appendix IV Constituents (mg/L)</b>					
Antimony, Total	0.006	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic, Total	0.01	0.001 U	0.001 U	0.001 U	<b>0.0027</b>
Barium, Total	2	<b>0.035</b>	<b>0.038</b>	<b>0.04</b>	<b>0.049</b>
Beryllium, Total	0.004	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, Total	0.005	0.001 U	0.001 U	0.001 U	0.001 U
Chromium, Total	0.1	0.002 U	<b>0.0015 J</b>	0.002 U	<b>0.0047</b>
Cobalt, Total	0.006	0.0005 U	<b>0.00022 J</b>	0.0005 U	<b>0.0015</b>
Fluoride	4	<b>0.33 J+</b>	<b>0.36</b>	<b>0.16 J+</b>	<b>0.19 J+</b>
Lead, Total	0.015	0.001 U	<b>0.00026 J</b>	0.001 U	<b>0.0024</b>
Lithium, Total	0.04	0.005 U	0.005 U	0.005 U	<b>0.0043 J</b>
Mercury, Total	0.002	0.0002 U	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	0.1	<b>0.00084 J</b>	<b>0.00098 J</b>	<b>0.00092 J</b>	<b>0.00077 J</b>
Selenium, Total	0.05	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	<b>0.00019 J</b>
<b>Radiological (pCi/L)</b>					
Radium-226	NA	<b>0.252 ± 0.108</b>	<b>0.410 ± 0.202</b>	<b>0.0449 ± 0.0731</b>	<b>0.359 ± 0.293</b>
Radium-228	NA	<b>0.388 ± 0.296</b>	<b>2.05 ± 0.517</b>	<b>0.268 ± 0.287</b>	<b>2.39 ± 0.889</b>
Radium-226 & 228	5	<b>0.640 ± 0.315</b>	<b>2.46 ± 0.555</b>	<b>0.313 ± 0.296</b>	<b>2.74 ± 0.936</b>
<b>Field Parameters</b>					
Temperature (Deg C)	NA	<b>16.16</b>	<b>13.12</b>	<b>14.63</b>	<b>14.33</b>
Dissolved Oxygen, Field (mg/L)	NA	<b>6.65</b>	<b>6.33</b>	<b>0.37</b>	<b>0.81</b>
Conductivity, Field (mS/cm)	NA	<b>0.50816</b>	<b>0.51769</b>	<b>0.51031</b>	<b>0.63651</b>
ORP, Field (mv)	NA	<b>42.6</b>	<b>61.9</b>	<b>27.6</b>	<b>53.2</b>
Turbidity, Field (NTU)	NA	<b>0.19</b>	<b>2.07</b>	<b>1.77</b>	<b>7.23</b>
pH, Field (pH units)	NA	<b>7.04</b>	<b>6.94</b>	<b>6.98</b>	<b>6.78</b>

**ABBREVIATIONS AND NOTES:**

CCR: Coal Combustion Residuals.

mg/L: milligram per liter.

pCi/L: picoCurie per liter.

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>

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**SUMMARY OF GROUNDWATER QUALITY DATA**  
 A.B. BROWN GENERATION STATION  
 LANDFILL  
 MOUNT VERNON, INDIANA

Location Group Location Name Sample Name Sample Date Lab Sample ID	Action Level Maximum Contaminant Level/ Regional Screening Levels	Downgradient						
		CCR-LF-1 CCR-LF-1-20210520 05/20/2021 180-122147-3	CCR-LF-1 CCR-LF-1-20211119 11/19/2021 180-130315-13	CCR-LF-1 DUP-3-20211119 11/19/2021 180-130315-19	CCR-LF-2 CCR-LF-2-20210520 05/20/2021 180-122147-4	CCR-LF-2 CCR-LF-2-20211119 11/19/2021 180-130315-14	CCR-LF-3 CCR-LF-3-20210520 05/20/2021 180-122147-5	CCR-LF-3 BLIND DUPLICATE 2-20210520 05/20/2021 180-122147-13
<b>Detection Monitoring - EPA Appendix III Constituents (mg/L)</b>								
Boron, Total	NA	0.058 J-	0.08 UJ	0.08 UJ	4.6 J-	4.7 J-	0.19 J-	0.21 J-
Calcium, Total	NA	290	270 J+	260 J+	370	370	350	330
Chloride	NA	23	22	20	370	330	28	29
Fluoride	4	0.19 J+	0.32	0.28	2.5 U	4.2	0.1 U	0.1 U
pH (lab) (pH units)	NA	7.2 J	7.1 J	7.5 J	7.6 J	6.9 J	7.1 J	6.5 J
Sulfate	NA	1100	1100	1100	15000	15000	1500	1500
Total Dissolved Solids (TDS)	NA	1900	1900	1900	21000	20000	2100	2100
<b>Assessment Monitoring - EPA Appendix IV Constituents (mg/L)</b>								
Antimony, Total	0.006	0.002 U	0.00058 J	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U
Arsenic, Total	0.01	0.00083 J	0.0022	0.0018	0.0015	0.001	0.0004 J	0.001 U
Barium, Total	2	0.056	0.17	0.14	0.011	0.011	0.016	0.016
Beryllium, Total	0.004	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U
Cadmium, Total	0.005	0.001 U	0.001 U	0.001 U	0.0048	0.0084	0.001 U	0.001 U
Chromium, Total	0.1	0.0018 J	0.004	0.0038	0.002 U	0.002 U	0.0015 J	0.0015 J
Cobalt, Total	0.006	0.00049 J	0.001	0.00086	0.013	0.011	0.0005 U	0.0005 U
Fluoride	4	0.19 J+	0.32	0.28	2.5 U	4.2	0.1 U	0.1 U
Lead, Total	0.015	0.00063 J	0.0019	0.0015	0.00019 J	0.00047 J	0.001 U	0.001 U
Lithium, Total	0.04	0.0043 J	0.0055	0.0056	0.017	0.016	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	0.00085 J	0.0012 J	0.0012 J	0.0027 J	0.0022 J	0.001 J	0.005 U
Selenium, Total	0.05	0.005 U	0.005 U	0.005 U	0.0056	0.0048 J	0.005 U	0.005 U
Thallium, Total	0.002	0.001 U	0.001 U	0.001 U	0.00066 J	0.00075 J	0.001 U	0.001 U
<b>Radiological (pCi/L)</b>								
Radium-226	NA	0.638 ± 0.305	4.21 ± 0.816	2.25 ± 0.593	0.195 ± 0.131	0.336 ± 0.163	0.0121 ± 0.14	0.118 ± 0.113
Radium-228	NA	0.497 ± 0.338	3.85 ± 1.04	4.20 ± 0.968	1.34 ± 0.432	3.54 ± 0.642	0.391 ± 0.271	0.255 ± 0.285
Radium-226 & 228	5	1.14 ± 0.455	8.07 ± 1.32	6.46 ± 1.14	1.54 ± 0.451	3.87 ± 0.662	0.403 ± 0.305	0.373 ± 0.307
<b>Field Parameters</b>								
Temperature (Deg C)	NA	14.7	15.29	15.29	16.02	13.92	16.51	16.51
Dissolved Oxygen, Field (mg/L)	NA	1.84	1.63	1.63	0.1	0.22	6.06	6.06
Conductivity, Field (mS/cm)	NA	2.1281	2.1675	2.1675	23.041	23.336	2.6807	2.6807
ORP, Field (mv)	NA	83	149.9	149.9	118.9	183.6	101.4	101.4
Turbidity, Field (NTU)	NA	62.23	17.74	17.74	9.51	6.08	1.64	1.64
pH, Field (pH units)	NA	6.78	6.74	6.74	6.54	6.56	6.76	6.76

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**SUMMARY OF GROUNDWATER QUALITY DATA**  
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 MOUNT VERNON, INDIANA

Location Group Location Name Sample Name Sample Date Lab Sample ID	Action Level Maximum Contaminant Level/ Regional Screening Levels	Downgradient						
		CCR-LF-3 CCR-LF-3-20211118 11/18/2021 180-130263-11	CCR-LF-4 CCR-LF-4-20210519 05/19/2021 180-122065-10	CCR-LF-4 CCR-LF-4-20211119 11/19/2021 180-130315-15	CCR-LF-5 CCR-LF-5-20210519 05/19/2021 180-122065-11	CCR-LF-5 CCR-LF-5-20211119 11/19/2021 180-130315-16	CCR-LF-6 CCR-LF-6-20210519 05/19/2021 180-122065-12	CCR-LF-6 CCR-LF-6-20211119 11/19/2021 180-130315-17
<b>Detection Monitoring - EPA Appendix III Constituents (mg/L)</b>								
Boron, Total	NA	0.22 J	0.29	0.35 J	1.5	0.96 J-	0.83	0.62 J-
Calcium, Total	NA	320 J+	230	340 J+	450	390 J+	330	190 J+
Chloride	NA	29	83	130	370	290	64	31
Fluoride	4	0.34	0.32 J+	0.47 J	0.23 J+	0.27 J	0.25 J+	0.32
pH (lab) (pH units)	NA	7.1 J	7.2 J	7 J	7.2 J	7.3 J	7 J	7.4 J
Sulfate	NA	1500	4100	7700	2700	5 U	1100	710
Total Dissolved Solids (TDS)	NA	2400	6300	9500	4800	4300	1800	1300
<b>Assessment Monitoring - EPA Appendix IV Constituents (mg/L)</b>								
Antimony, Total	0.006	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.002 U	0.00086 J
Arsenic, Total	0.01	0.00031 J	0.026	0.02	0.001 U	0.0015	0.001 U	0.0043
Barium, Total	2	0.017	0.0087 J	0.011	0.021	0.037	0.019	0.098
Beryllium, Total	0.004	0.001 U	0.00034 J	0.001 U	0.001 U	0.00019 J	0.001 U	0.00035 J
Cadmium, Total	0.005	0.001 U	0.001 U	0.001 U	0.001 U	0.00024 J	0.00025 J	0.0047
Chromium, Total	0.1	0.0015 J	0.002 U	0.002 U	0.002 U	0.0026	0.002 U	0.007
Cobalt, Total	0.006	0.0005 U	0.00054	0.0011	0.00018 J	0.0013	0.0005 U	0.016
Fluoride	4	0.34	0.32 J+	0.47 J	0.23 J+	0.27 J	0.25 J+	0.32
Lead, Total	0.015	0.001 U	0.0013	0.00031 J	0.001 U	0.0011	0.001 U	0.0032
Lithium, Total	0.04	0.005 U	0.037	0.064	0.02	0.02	0.019	0.019
Mercury, Total	0.002	0.0002 U	0.0002 U	0.0002 U	0.00015 J	0.0002 U	0.0002 U	0.0002 U
Molybdenum, Total	0.1	0.001 J	0.015	0.023	0.00069 J	0.00078 J	0.00071 J	0.0066
Selenium, Total	0.05	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.005 U	0.0023 J
Thallium, Total	0.002	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.001 U	0.00015 J
<b>Radiological (pCi/L)</b>								
Radium-226	NA	0.0571 ± 0.0945	1.65 ± 0.265	2.60 ± 0.417	0.247 ± 0.105	0.521 ± 0.276	0.0932 ± 0.0857	1.02 ± 0.436
Radium-228	NA	1.62 ± 0.534	0.662 ± 0.293	2.02 ± 0.401	0.723 ± 0.48	2.26 ± 0.668	0.725 ± 0.326	5.51 ± 1.19
Radium-226 & 228	5	1.68 ± 0.542	2.32 ± 0.395	4.62 ± 0.579	0.969 ± 0.491	2.78 ± 0.723	0.819 ± 0.337	6.53 ± 1.27
<b>Field Parameters</b>								
Temperature (Deg C)	NA	14.88	15.64	13.25	15.54	13.64	14.34	14.73
Dissolved Oxygen, Field (mg/L)	NA	6.41	1.99	0.48	0.1	0.16	0.2	1.34
Conductivity, Field (mS/cm)	NA	2.5134	7.6081	13.514	5.6854	5.3038	2.4261	1.6546
ORP, Field (mv)	NA	56.2	1.8	-9.5	31.2	7.9	30.2	19.8
Turbidity, Field (NTU)	NA	0	15.69	3.66	2.64	2.43	0	3.96
pH, Field (pH units)	NA	6.64	6.8	6.71	6.93	6.89	6.91	7

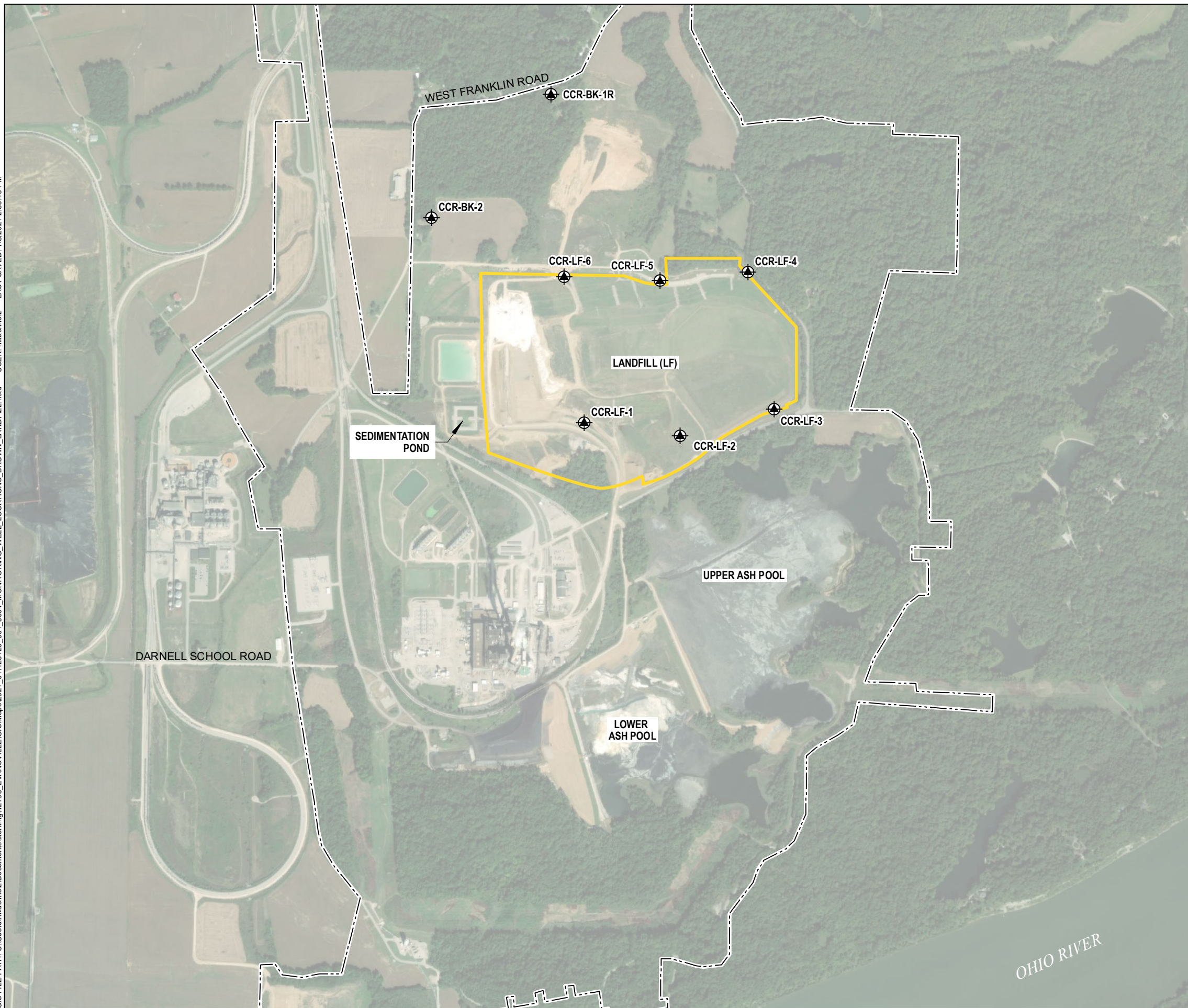
**ABBREVIATIONS AND NOTES:**

CCR: Coal Combustion Residuals.  
 mg/L: milligram per liter.  
 pCi/L: picoCurie per liter.  
 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>

## FIGURES

GIS FILE PATH: C:\Users\hwachholz\Documents\working\42796\_EVANSVILLE\GIS\Maps\2021\_011129420\_001\_0001\_MONITORING\_WELL\_LOCATIONS\_BROWN\_LANDFILL.mxd — USER: hwachholz — LAST SAVED: 1/8/2021 2:50:49 PM

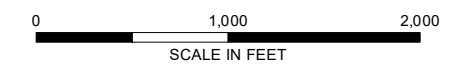


**LEGEND**

-  CCR MONITORING WELL
-  APPROXIMATE UNIT BOUNDARY

**NOTES**

1. ALL LOCATIONS ARE APPROXIMATE.
2. AERIAL IMAGERY SOURCE: ESRI



**HALEY ALDRICH** SOUTHERN INDIANA GAS AND ELECTRIC COMPANY  
A.B. BROWN GENERATING STATION  
MOUNT VERNON, INDIANA

**GROUNDWATER MONITORING  
WELL LOCATIONS -  
LANDFILL**

JANUARY 2022

**FIGURE 1**