

July 28, 2022

**FY2022 Engineering (Annual) Inspection of CCR Facilities
Cumberland Fossil Plant
Cumberland City, Stewart City, TN**

Presented in this report are the results of the Tennessee Valley Authority's (TVA) engineering (Annual) inspection of Coal Combustion Residuals (CCR) Units and supporting facilities in accordance with relevant requirements of TVA's CCR Structural Stability Program (CCRSSP) and the Environmental Protection Agency's (EPA) CCR Rule. This engineering inspection has been conducted, and the inspection report has been prepared, in accordance with the following provisions:

CCR Rule

- 40 CFR 257.83(b) (annual inspection requirements for CCR surface impoundments)
- 40 CFR 257.84(b) (annual inspection requirements for CCR landfills)

CCRSSP

- *CCR Structural Stability Program: Governance and Oversight for CCR and non-CCR Storage Facilities at TVA Fossil Plants – Rev. 1, September 30, 2021* (guidance document)
- *Performance Monitoring of CCR Storage Facilities – Rev. 1, September 30, 2021* (guidance document)

The 2022 Engineering Inspection of CCR Facilities at TVA's Cumberland Fossil Plant (CUF) included inspection of the following units:

- Stilling Pond (including Retention Pond)
- Bottom Ash Pond
- Gypsum Storage Area
- Dry Ash Stack

Figure A-1 in Attachment A provides an aerial map of the CUF. The field inspection was performed on May 25, 2022, in accordance with the CUF Inspection Plan. The weather at the time of the inspection was partly cloudy and 79 degrees Fahrenheit. The site received approximately 0.3 inches (in.) of rain during the inspection and approximately 0.9 in. of rain the week prior to the inspection.

The results of the field inspection are presented in **Attachments B through D** including the inspection forms, photo logs, site layout maps, and instrumentation review.

Data Review

Documents reviewed prior to performing the field inspection included:

- *Cumberland Fossil Plant Inspection Plan – Rev. 0 (September 30, 2021)*
- *FY2022 Quarterly Informal Inspection Reports (March and December 2021)*
- *FY2021 Annual Inspection Report of CCR Facilities, Cumberland Fossil Plant, Stewart County, Tennessee (Stantec, September 8, 2021)*
- *FY2020 Annual Inspection Report of CCR Facilities, Cumberland Fossil Plant, Stewart County, Tennessee (TVA, December 11, 2020)*
- *Annual Instrumentation and Monitoring Program Performance Report – Rev 0 (Stantec, February 4, 2022)*

- *Monthly Instrumentation Reports since the 2021 Annual Inspection (Stantec, October 2021 – April 2022)*
- *Drawing Series 10W555-351 – Plans for Construction, Dry Ash Stack Access Ramp, Cumberland Fossil Plant, Cumberland City, Stewart County, Tennessee (Stantec, February 5, 2021)*
- *Cover Drawings – Rev 0, Gypsum Operations Plan, Cumberland Fossil Plant, Cumberland City, Stewart County, Tennessee (Stantec, January 12, 2021)*
- *Published CCR Rules established by the EPA CCR Rule demonstrations available on TVA's publicly available CCR Rules Website*

These documents were reviewed for previously identified areas of interest, potential locations of structural weakness at each facility, instrumentation condition and readings, and documentation of any construction activities that occurred since the previous engineering inspection.

General Conditions

The CUF plant produces CCR materials consisting of fly ash, bottom ash, and gypsum. The Stilling Pond (including Retention Pond), or Main Ash Pond, previously received stormwater runoff from the adjacent Dry Ash Stack and Gypsum Storage Area in addition to receiving process waters via the Bottom Ash Pond and effluent from various other plant operations. In October 2020, flows were redirected to the Temporary Lined Basin (located in the southeast corner of the Stilling Pond). Currently the facility is under construction to be repurposed from an unlined CCR surface impoundment to two lined process water basins. The construction is being implemented under two projects: the Main Ash Pond Repurposing (MAPR) Project and the Process Flow Management (PFM) Project. Construction activities for these projects were ongoing during the inspection.

The Bottom Ash Pond previously consisted of four cells interconnected with various piping and used for wet sluicing of CCR products and process waters. The Bottom Ash Pond is currently inactive with process water flows being routed directly to the Temporary Lined Basin. Stormwater which was previously conveyed through the Bottom Ash Pond is similarly conveyed directly to the Temporary Lined Basin. The Bottom Ash Pond has been temporarily regraded to drain stormwater until formal closure is initiated.

The Gypsum Storage Area periodically receives marketable gypsum, which is dewatered at the Synthetic Materials Dewatering Facility, operated by Synthetic Materials (SYNMAT), including gypsum fines from the recently completed Flue Gas Desulfurization (FGD) Wastewater Treatment Plant (WWTP) which was completed in May 2021. Marketable gypsum is sent directly to the Georgia Pacific wallboard manufacturing facility as needed. TVA also harvests gypsum from the Gypsum Storage Area to provide additional marketable gypsum to Georgia Pacific when CUF is not producing sufficient marketable gypsum.

The Dry Ash Stack receives dry fly ash from onsite storage silos. The fly ash is pneumatically conveyed from the CUF powerhouse to the storage silos. The stack also receives dry bottom ash sourced from the Bottom Ash Dewatering Facility (BADW) which was completed in February 2021. Both fly and bottom ash are moisture conditioned for compaction and dust control after placement in the Dry Ash Stack.

A general overview of site conditions is provided below.

- A good stand of grass is generally maintained on the slopes of the perimeter dikes and stacks of all the facilities.

- Various maintenance activities at the facilities have been performed since the previous annual inspection, including repairing of animal burrows, maintaining vegetation, and repairing remote station readouts.
- No slope instabilities were observed during this inspection.
- Evidence of sinkholes or depressions were not observed.
- Outlet structures and drainage pipes were generally in good condition.
- Areas of poor vegetation and new animal burrows which were observed on exterior slopes of the Gypsum Storage Area and Dry Ash Stack were flagged in the field and reported to TVA for general maintenance activities.
- Minor erosion features which were observed at the Bottom Ash Pond, Gypsum Storage Area, and Dry Ash Stack were flagged in the field and reported to TVA for general maintenance activities.
- A damaged flush mount instrument cover was identified at piezometer CUF_DAS_C_1 and was reported to TVA for general maintenance activities.
- The perimeter ditch around the Gypsum Storage Area and Dry Ash Stack was lined.

The inspection team did not observe any deficiencies that would be considered significant. Significant inspection findings are conditions that indicate that the integrity of a significant or high hazard potential water retaining structure (potential loss of life and/or significant property damage) could be in jeopardy if corrective action is not taken. For embankments, significant findings might include, but not be limited to, crest settlement, sloughing or wet areas in the downstream slope, increase in the volume of seepage or seepage containing soils, or adverse changes in piezometric levels.

Observations of minor features or areas which were reported to TVA for general maintenance activities have not been documented as deficiencies or areas of interest in this report. A post-inspection meeting was held to discuss these and provide TVA with relevant information for maintenance activities. These features and areas were repaired following the inspection and as of the date of this report, unless otherwise noted in Attachment G.

Areas of Interest – 2021 Annual Inspection (June 8, 2021)

Two areas of interest were observed during the 2021 field inspection:

- One new animal burrow was observed on the southeastern side slope of the Dry Ash Stack. The animal burrow was repaired in accordance with TVA general maintenance guidelines by TVA following the 2021 inspection.
- Two remote readout stations, CUF_RS_31 and CUF_RS_32, located on top of the Dry Ash Stack on the northwest side were observed to be below the ground surface elevation of the stack. TVA will raise these instruments as part of their routine handling and operations work.

Areas of Interest – 2022 Engineering Inspection (May 25, 2022)

No areas of interest related to structural deficiencies for impoundments or embankments were identified in the 2022 inspection.

Instrumentation

Instrumentation data was reviewed from June 08, 2021, through May 25, 2022. This data included automated and manual water level readings obtained at the piezometers and deflection measurements in the slope inclinometers. Instrumentation data was collected from TVA's iSite Central and facility monthly reports. Instrumentation data is analyzed monthly and semi-annually by TVA for significant fluctuations in the automated and manual data, respectively. The maximum recorded instrumentation readings from available data since the previous annual inspection are listed in a table in each facility's respective

attachment. Also, an instrumentation layout is provided for each facility in Attachment A. Below is a summary of the identified instrumentation review at CUF. For additional details, refer to the annual and monthly instrumentation summary reports.

Stilling Pond (including Retention Pond)

- Thirty-two automated piezometers are installed at the Stilling Pond (including Retention Pond).
- As part of the MAPR and PFM Projects, long-term monitoring piezometers were temporarily taken offline in June 2021. No readings were obtained from offline instruments.
- One automated slope inclinometer was installed at the Stilling Pond (including Retention Pond). This instrument was removed due to construction in June 2021 and has not been reinstalled.
- Fourteen piezometers, one slope inclinometer, and eight tiltmeters are currently being monitored as part of the MAPR and PFM Projects Surveillance Instrumentation and Monitoring Plan (SIMP). These instruments are not being monitored for long-term stability and have been excluded from this report.

Bottom Ash Pond

- Ten automated piezometers are installed at the Bottom Ash Pond.

Gypsum Storage Area

- Seventy-nine automated piezometers are installed at the Gypsum Storage Area.
- Five automated slope inclinometers are installed at the Gypsum Storage Area.

Dry Ash Stack

- Seventy-eight automated piezometers are installed at the Dry Ash Stack.
- Two automated slope inclinometers are installed at the Dry Ash Stack.

CCR Rule Compliance

Based on 40 CFR §257.83 and §257.84 from the published EPA CCR Rules, various metrics are required to be provided at each CCR impoundment and landfill facility for the annual inspection in addition to the visual assessment of the CCR units. A table of these metrics is presented in Attachment F.

Vernon James Dotson, Jr., P.E.



Attachment A – CCR Unit and Instrumentation Maps

Attachment B – Stilling Pond (including Retention Pond) Documents

Attachment C – Bottom Ash Pond Documents

Attachment D – Gypsum Storage Area Documents

Attachment E – Dry Ash Stack Documents

Attachment F – CCR Rule Requirements Tables

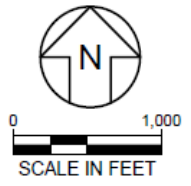
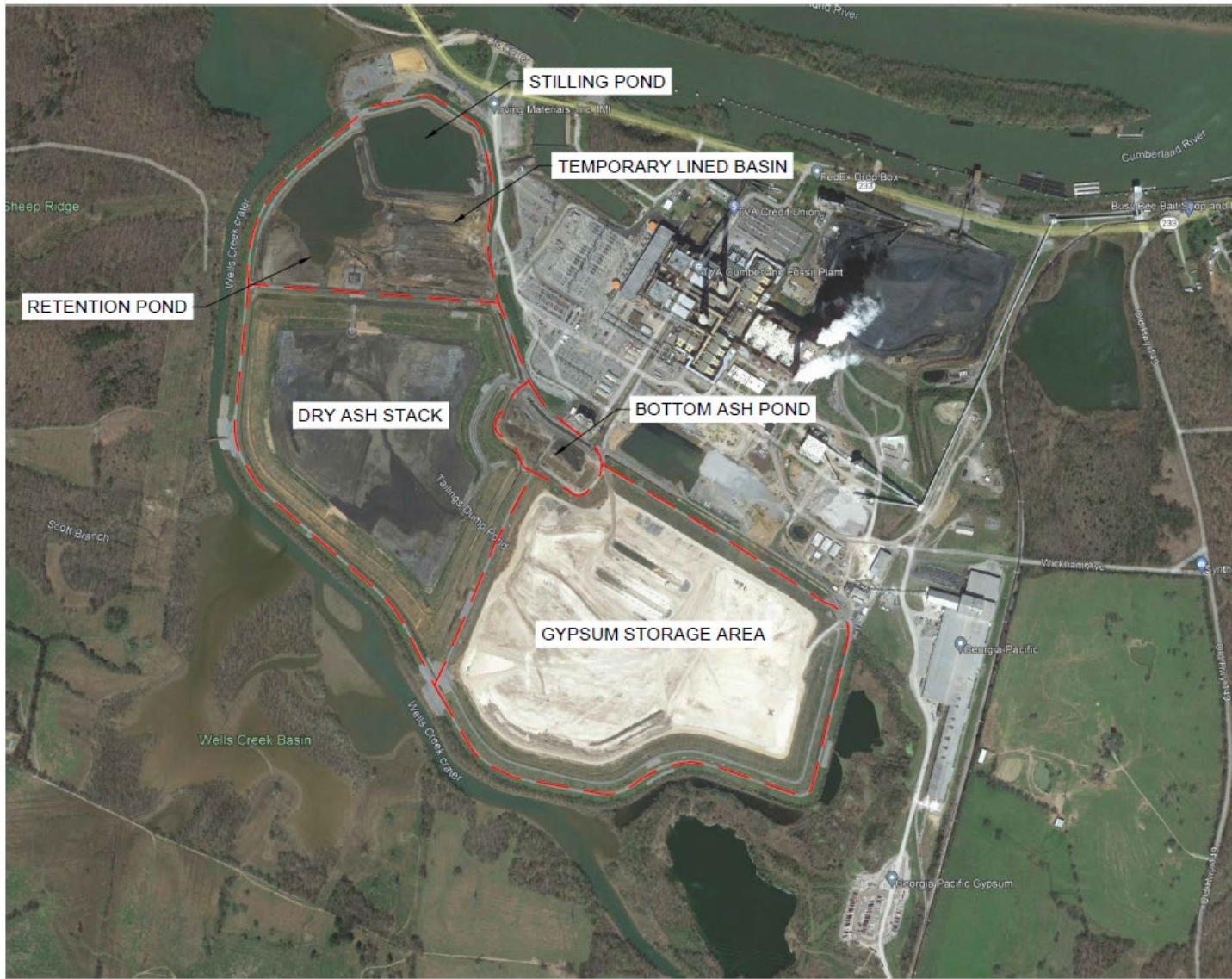
Attachment G – Inspection Deficiency Table

07/28/2022

Attachment A

CCR Unit and Instrumentation Maps

- CCR Unit Map (Figure A-1)
- Instrumentation Layout (as of 02/2021)

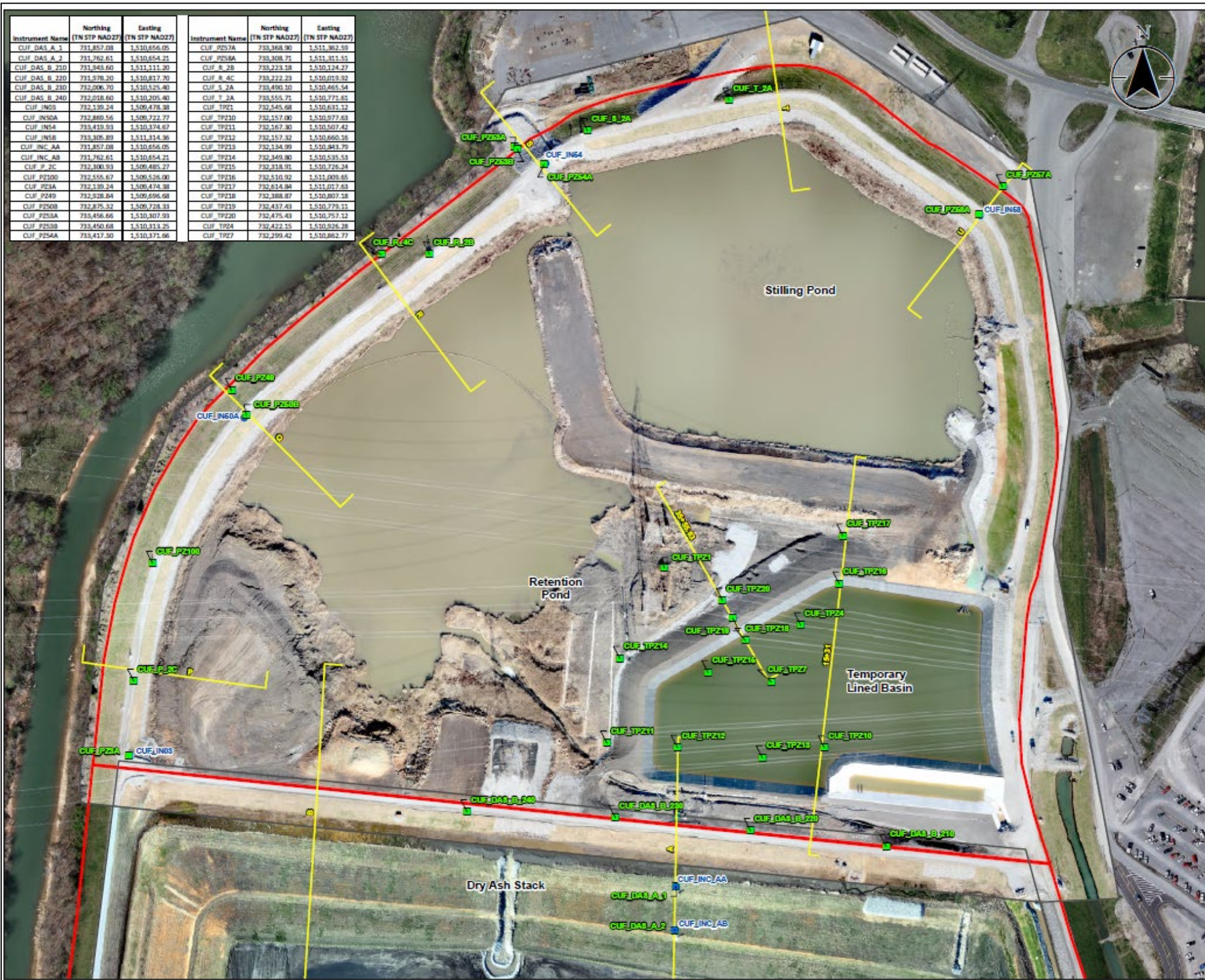


LEGEND

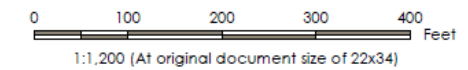
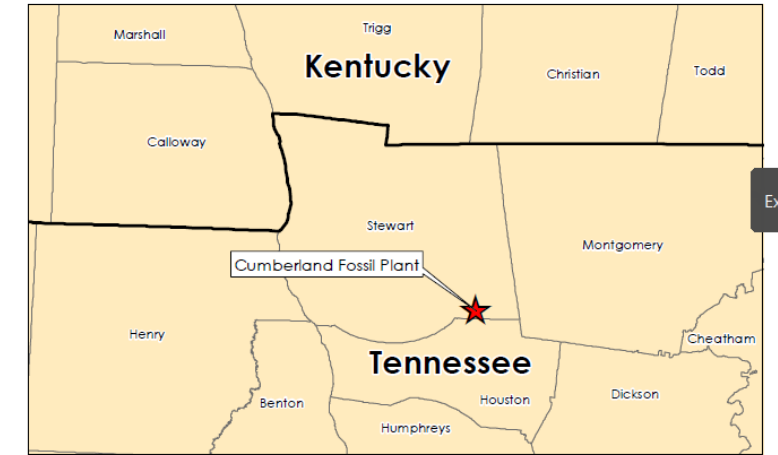
INSPECTION EXTENTS - - - - -

**TVA CUMBERLAND FOSSIL PLANT
SITE LAYOUT**

		FIGURE
		A-1
PROJECT NO: TN8439	JULY 2022	



Instrument Name	Northing (TN STP NAD27)	Easting (TN STP NAD27)	Instrument Name	Northing (TN STP NAD27)	Easting (TN STP NAD27)
CUF_DAS_A_1	731,857.08	1,510,656.05	CUF_PZ57A	733,368.90	1,511,362.58
CUF_DAS_A_2	731,762.61	1,510,654.21	CUF_PZ58A	733,308.71	1,511,351.55
CUF_DAS_B_210	731,943.60	1,511,211.20	CUF_R_2B	733,273.18	1,510,124.27
CUF_DAS_B_220	731,978.20	1,510,817.20	CUF_S_2A	733,272.23	1,510,019.92
CUF_DAS_B_230	732,006.70	1,510,525.40	CUF_T_2A	733,490.10	1,510,465.54
CUF_DAS_B_240	732,018.60	1,510,205.40	CUF_T_2A	733,555.71	1,510,771.65
CUF_INC3	732,130.24	1,509,478.38	CUF_TP21	732,545.68	1,510,637.52
CUF_INC4	732,889.56	1,509,722.77	CUF_TP22	732,557.00	1,510,977.68
CUF_INC5	733,419.93	1,510,374.67	CUF_TP23	732,567.30	1,510,507.42
CUF_INC6	733,308.89	1,511,514.36	CUF_TP24	732,557.32	1,510,660.56
CUF_INC7	731,857.08	1,510,656.05	CUF_TP25	732,534.99	1,510,843.79
CUF_INC8	731,762.61	1,510,654.21	CUF_TP26	732,349.80	1,510,535.53
CUF_P_2C	732,300.93	1,509,485.27	CUF_TP27	732,318.91	1,510,726.24
CUF_PZ100	732,556.67	1,509,526.00	CUF_TP28	732,510.92	1,511,009.68
CUF_PZ1A	732,130.24	1,509,474.38	CUF_TP29	732,614.94	1,511,017.63
CUF_PZ1B	732,528.84	1,509,696.68	CUF_TP30	732,388.87	1,510,807.18
CUF_PZ1C	732,875.32	1,509,728.33	CUF_TP31	732,437.43	1,510,778.11
CUF_PZ1D	733,456.66	1,510,307.93	CUF_TP32	732,475.43	1,510,757.12
CUF_PZ1E	733,450.68	1,510,313.25	CUF_TP33	732,472.15	1,510,926.28
CUF_PZ1F	733,417.30	1,510,371.66	CUF_TP34	732,299.42	1,510,862.77



Legend

- Piezometer
- Manually Read Slope Inclinometer
- Slope Inclinometer
- Stability Cross Section
- 2019 Imagery Boundary
- CCR Unit Area (Approximate)
- TVA Property Boundary

**CUF INSTRUMENTATION MAIN ASH POND AND
TEMPORARY LINED BASIN (AS OF 02/2021)
CUMBERLAND FOSSIL PLANT**

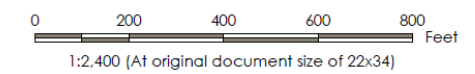
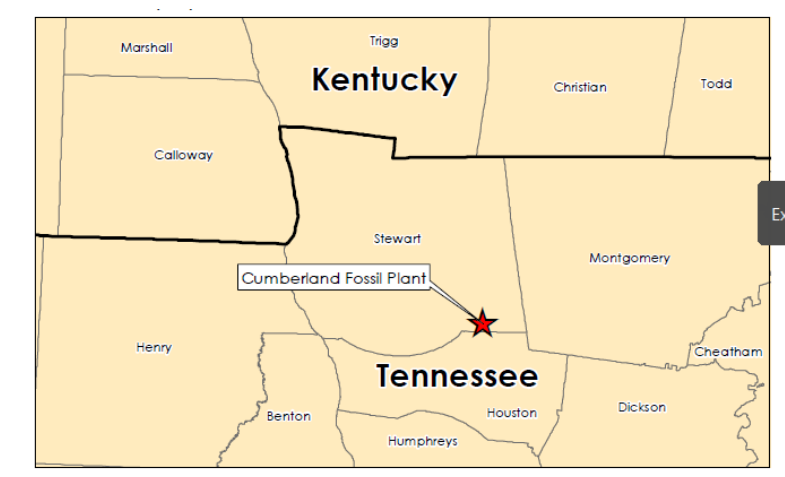
Notes:

1. Coordinate System: NAD 1927 StatePlane Tennessee FIPS 4100 Feet.
2. Imagery Provided by Tuck Mapping (c. 2017) and TVA dated 3/6/2019 and 12/11/2019.
3. Instruments shown are monitored under the long-term instrumentation monitoring program. Additional instruments may be installed at the site for other purposes.

		FIGURE A-2
	PROJECT NO: TN8439	JULY 2022



Instrument Name	Northing	Easting	Instrument Name	Northing	Easting
CUF 2 F2	711,500.43	1,506,270.37	CUF H 2B	728,806.78	1,510,877.63
CUF_BASHP-4D	730,855.21	1,511,849.44	CUF H 2C	728,780.31	1,510,876.01
CUF_BASHP-4E	731,895.73	1,511,859.77	CUF INC3	732,138.24	1,506,476.38
CUF_C 1B	731,495.43	1,506,480.33	CUF INC4A	730,651.56	1,506,388.56
CUF_C 3D	731,457.43	1,506,679.30	CUF INC15B	728,715.81	1,510,328.25
CUF_DAS_A 1	731,857.08	1,510,656.05	CUF INC15A	728,808.83	1,510,877.54
CUF_DAS_A 2	731,782.61	1,510,654.21	CUF INC17B	728,808.50	1,510,876.50
CUF_DAS_B 210	731,941.60	1,511,411.30	CUF INC20A	728,181.20	1,512,581.60
CUF_DAS_B 220	731,978.30	1,510,817.30	CUF INC27A	728,840.41	1,514,051.06
CUF_DAS_B 230	732,096.70	1,510,625.40	CUF INC43A	730,787.50	1,512,481.36
CUF_DAS_B 240	732,203.60	1,510,506.40	CUF INC_AA	731,857.08	1,510,656.05
CUF_DAS_C 1	731,587.76	1,506,525.04	CUF INC_AB	731,782.61	1,510,654.21
CUF_DAS_D 1	730,687.53	1,506,536.98	CUF INC_DB	730,745.37	1,506,441.82
CUF_DAS_D 2	730,745.37	1,506,491.82	CUF INC_DC	730,786.40	1,506,585.56
CUF_DAS_D 3	730,786.40	1,506,585.56	CUF INC_XA	731,515.82	1,511,428.06
CUF_DAS_G 1	730,088.30	1,511,242.38	CUF INC_XB	731,505.61	1,511,330.13
CUF_DAS_G 2	730,150.86	1,511,116.18	CUF INC40	728,818.20	1,510,486.60
CUF_DAS_INT 1	730,451.19	1,510,736.96	CUF_K 2D	728,313.23	1,513,487.23
CUF_DAS_INT 2	731,044.80	1,510,387.96	CUF_K 2E	728,143.84	1,513,685.66
CUF_DAS_K 1	731,515.82	1,511,428.06	CUF_K 2F	728,112.94	1,513,762.56
CUF_DAS_K 2	731,505.61	1,511,330.13	CUF_M 2A	730,270.60	1,513,418.34
CUF_F 2A	728,885.06	1,510,547.02	CUF_M 2B	730,380.87	1,513,483.48
CUF_F 2B	728,821.87	1,510,478.91	CUF_M 2C	730,488.72	1,513,554.84
CUF_F 4E	728,728.33	1,510,377.34	CUF_P215A	728,713.11	1,510,321.12
CUF_GSA_K 1	728,067.23	1,512,844.36	CUF_P21	728,813.36	1,510,875.98
CUF_GSA_G 1	728,886.70	1,511,436.52	CUF_P22A	728,828.60	1,510,864.76
CUF_GSA_G 2	728,845.44	1,511,513.33	CUF_P22B	728,254.15	1,513,525.40
CUF_GSA_INT 1	728,888.04	1,512,018.05	CUF_P22C	728,179.37	1,513,587.54
CUF_GSA_INT 2	728,311.64	1,512,885.37	CUF_P23E	728,876.61	1,513,930.45
CUF_GSA_L 1	728,184.43	1,512,086.96	CUF_P237	728,853.00	1,514,022.47
CUF_GSA_L 1	728,761.71	1,513,646.85	CUF_P23A	732,138.24	1,506,474.38
CUF_GSA_M 1	728,782.77	1,513,381.43	CUF_P243	730,342.74	1,513,760.25
CUF_GSA_M 2	728,682.33	1,513,326.42	CUF_P243	730,344.20	1,513,485.22
CUF_H 2A	728,851.40	1,511,082.43	CUF_P29	730,659.51	1,506,386.49



Legend

- Piezometer
- Slope Inclinometer
- Slope Inclinometer and Piezometer
- Stability Cross Section
- 2019 Imagery Boundary
- CCR Unit Area (Approximate)
- TVA Property Boundary

**CUF INSTRUMENTATION BOTTOM ASH POND,
DRY ASH STACK, AND GYPSUM STORAGE AREA
(AS OF 10/2021)
CUMBERLAND FOSSIL PLANT**

Notes:

1. Coordinate System: NAD 1927 StatePlane Tennessee FIPS 4100 Feet.
2. Imagery Provided by Tuck Mapping (c. 2017) and TVA dated 3/6/2019 and 12/11/2019.
3. Instruments shown are monitored under the long-term instrumentation monitoring program. Additional instruments may be installed at the site for other purposes.

		FIGURE A-3
	PROJECT NO: TN8439	

Attachment B

Stilling Pond (including Retention Pond) Documents

- Inspection Checklist
- Photo Log
- Site Layout
- Instrumentation Summary



IMPOUNDMENT ANNUAL INSPECTION

1. Site Name: Cumberland Fossil Plant 2. Facility Name: Stilling Pond (including Retention Pond) 3. Date: May 25, 2022
 4. Type: X Quarterly X Engineering
 5. Operator Name: TVA 6. Hazard Classification: Significant
 7. Inspector's Names: Jamey Dotson, Max Cange, Daisy McMillion
 8. Weather Conditions / Temperature: Partly Cloudy and approximately 79 degrees

Check the appropriate box below. If not applicable, record "N/A". Provide comments when appropriate. Any other areas that should be investigated more closely should also be noted in the "Comments" section. Indicate the locations of any areas identified, and photograph and attach to the form. Previous observation forms should be reviewed and any NEW observations or degradation of previous conditions should be reported on this observation form.

	Yes	No		Yes	No
9. Pre-Job Safety Briefing Performed	X		15. DIKE TOE AREAS		
10. Activity / Construction on / at facility	X		A. Seepage <input type="radio"/> New <input type="radio"/> Existing		X
11. DIKE CREST			<input type="radio"/> Clear or Muddy		N/A
A. Settlement / Cracking		X	<input type="radio"/> Flow Increase / Decrease		N/A
B. Rutting		X	<input type="radio"/> Aquatic Vegetation Growing		N/A
C. Lateral Displacement		X	<input type="radio"/> Ash or Clay Deposits Below Seep Outlet		N/A
D. Erosion		X	B. Boils <input type="radio"/> New <input type="radio"/> Existing		X
12. IMPOUNDMENT			<input type="radio"/> Clear or Muddy		N/A
A. Minimum Freeboard Required		N/A	<input type="radio"/> Flow Increase / Decrease		N/A
B. Actual Minimum Freeboard		N/A	<input type="radio"/> Growing in Size		N/A
C. Pool Elevation Measurement		N/A	C. Sinkholes/Depressions <input type="radio"/> New <input type="radio"/> Existing		X
13. DIKE INTERIOR/EXTERIOR SLOPES			16. SEEPAGE COLLECTION SYSTEM		
A. Instabilities (Sloughs or Slides)		X	A. Estimated Flow Measurement		N/A
B. Erosion		X	B. Increased Flow		N/A
C. Sinkholes/Depressions <input type="radio"/> New <input type="radio"/> Existing		X	C. Emitting Clear or Dirty Water		N/A
D. Vegetation / Brush / Trees (excessive)		X	17. SPILLWAY WEIRS & OUTLETS		
E. Animal Burrows <input type="radio"/> New <input type="radio"/> Existing		X	A. Decant Riser Misaligned		X
F. Seepage <input type="radio"/> New <input type="radio"/> Existing		X	B. Decant Pipe Joints Leaking/Separated		X
<input type="radio"/> Clear or Muddy		N/A	C. Headwall in Good Condition	X	
<input type="radio"/> Increased Flow		N/A	D. Siphons/Emergency Spillway in Good Condition		N/A
<input type="radio"/> Ash or Clay Deposits Below Seep Outlet		N/A	18. OPERATIONS & MAINTENANCE		
G. Seep around Drain Pipe (s)		X	A. Routine O&M Performed	X	
14. DEFICIENCIES			B. Changes in Operations		X
A. Prior Deficiencies Checked		N/A	19. INSTRUMENTATION		
B. New Deficiencies Identified / Flagged		X	A. Instrumentation readings reviewed	X	
C. Immediate Actions Taken (Note Below)		X	B. Instrumentation functioning properly		N/A
D. Photos of deficiencies attached		N/A	C. Physical Damage to Instrumentation		X

20. Major adverse changes in these items could cause instability and should be investigated more closely as soon as possible for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, etc.) in the space below. General Inspection comments and observations should also be noted below.

The Stilling Pond (including Retention Pond) at the time of inspection was under construction (Main Ash Pond Repurposing and Process Flow Management Projects). Free water had been removed from the pond and major earth moving activities were ongoing. The emergency spillway had been abandoned. All plant process and storm flows are currently routed through the Temporary Lined Basin.

- 12. Facility no longer impounds water.
- 14. No prior deficiencies identified. No deficiencies related to structural deficiencies were identified during this inspection.
- 16. Facility does not contain a seepage collection system.
- 17. Emergency spillway was abandoned for the Main Ash Pond Repurposing Project.
- 19. Automated instrumentation which are part of the long-term monitoring program were temporarily taken offline in June 2021 for ongoing construction activities. No readings were obtained from offline instruments during the reporting period.

21. Who was Notified of New Deficiency: (Date / Time) N/A

22. I hereby attest the above is based on actual field observations made during the period indicated, by either myself or an appointed representative and are accurate, complete, and correct to the best of my knowledge.

Period Covered:
 From: June 2021 To: May 2022 Signature: Jamey Dotson Date: July 28, 2022

FY2022 Annual Engineering Inspection of CCR Facilities
Cumberland Fossil Plant
Photo Log



Photo B-1	View of the Stilling Pond (including Retention Pond). General conditions, no deficiencies observed.
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Photo B-2	View of the Stilling Pond (including Retention Pond). General conditions, no deficiencies observed.
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FY2022 Annual Engineering Inspection of CCR Facilities
Cumberland Fossil Plant
Photo Log



Photo B-3	Consolidated CCR materials in the Stilling Pond (including Retention Pond). General conditions, no deficiencies observed.
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Cumberland Fossil Plant

Legend
Photo Location



Google Earth

Notes:

1. Locations shown were obtained in the field using mobile devices and are subject to limitations of devices' GSP accuracy. Locations should be considered approximate.

SITE LAYOUT
STILLING POND (INCLUDING RETENTION POND), BOTTOM
ASH POND, GYPSUM STORAGE AREA, DRY ASH STACK
CUMBERLAND FOSSIL PLANT



Geosyntec
consultants

FIGURE

B-1

PROJECT NO: TN8439

JULY 2022

CUF Instrumentation Data
Facility: Stilling Pond (including Retention Pond)

Instrument¹	Instrument Type	Maximum Reading Since Previous Inspection^{2,3} (ft)	Date Maximum Reading Recorded
CUF_PZ49	Piezometer	354.6	6/13/2021
CUF_PZ50B	Piezometer	360.0	6/20/2021
CUF_PZ53A	Piezometer	No Reading	N/A
CUF_PZ53B	Piezometer	No Reading	N/A
CUF_PZ54A	Piezometer	No Reading	N/A
CUF_PZ57A	Piezometer	No Reading	N/A
CUF_PZ58A	Piezometer	No Reading	N/A
CUF_PZ100	Piezometer	356.1	6/14/2021
CUF_P_2C_PZ1	Piezometer	No Reading	N/A
CUF_P_2C_PZ2	Piezometer	No Reading	N/A
CUF_P_2C_PZ3	Piezometer	No Reading	N/A
CUF_P_2C_PZ4	Piezometer	No Reading	N/A
CUF_R_2B_PZ1	Piezometer	No Reading	N/A
CUF_R_2B_PZ2	Piezometer	No Reading	N/A
CUF_R_2B_PZ3	Piezometer	No Reading	N/A
CUF_R_2B_PZ4	Piezometer	No Reading	N/A
CUF_R_2B_PZ5	Piezometer	No Reading	N/A
CUF_S_2A_PZ1	Piezometer	No Reading	N/A
CUF_S_2A_PZ2	Piezometer	No Reading	N/A
CUF_S_2A_PZ3	Piezometer	No Reading	N/A
CUF_S_2A_PZ4	Piezometer	No Reading	N/A
CUF_S_2A_PZ5	Piezometer	No Reading	N/A
CUF_T_2A_PZ1	Piezometer	No Reading	N/A
CUF_T_2A_PZ2	Piezometer	No Reading	N/A
CUF_T_2A_PZ3	Piezometer	No Reading	N/A
CUF_T_2A_PZ4	Piezometer	No Reading	N/A
CUF_T_2A_PZ5	Piezometer	No Reading	N/A
CUF_PZ_R4C_1	Piezometer	354.2	6/13/2021
CUF_PZ_R4C_2	Piezometer	No Reading	N/A
CUF_PZ_R4C_3	Piezometer	357.8	6/14/2021
CUF_PZ_R4C_4	Piezometer	363.9	6/13/2021
CUF_PZ_R4C_5	Piezometer	371.7	6/9/2021
CUF_IN50A	Slope Inclinometer	<0.2 inches	6/15/2021

1: See Instrumentation Layout for location of instruments

2: Maximum recorded reading for piezometers is the measured piezometric reading and for slope inclinometers is deflection.

3. As part of the Main Ash Pond Repurposing (MAPR) and Process Flow Management (PFM) Projects, the automated piezometers and slope inclinometer utilized for long-term monitoring were temporarily taken offline in June 2021. No readings were obtained from offline instruments.

Attachment C

Bottom Ash Pond Documents

- Inspection Checklist
- Photo Log
- Site Layout
- Instrumentation Summary



IMPOUNDMENT ANNUAL INSPECTION

1. Site Name: Cumberland Fossil Plant 2. Facility Name: Bottom Ash Pond 3. Date: May 25, 2022
 4. Type: X Quarterly X Engineering
 5. Operator Name: TVA 6. Hazard Classification: Low
 7. Inspector's Names: Jamey Dotson, Max Cange, Daisy McMillion
 8. Weather Conditions / Temperature: Partly Cloudy and approximately 79 degrees

Check the appropriate box below. If not applicable, record "N/A". Provide comments when appropriate. Any other areas that should be investigated more closely should also be noted in the "Comments" section. Indicate the locations of any areas identified, and photograph and attach to the form. Previous observation forms should be reviewed and any NEW observations or degradation of previous conditions should be reported on this observation form.

	Yes	No		Yes	No
9. Pre-Job Safety Briefing Performed	X		15. DIKE TOE AREAS		
10. Activity / Construction on / at facility		X	A. Seepage <input type="radio"/> New <input type="radio"/> Existing		X
11. DIKE CREST			<input type="radio"/> Clear or Muddy		N/A
A. Settlement / Cracking		X	<input type="radio"/> Flow Increase / Decrease		N/A
B. Rutting		X	<input type="radio"/> Aquatic Vegetation Growing		N/A
C. Lateral Displacement		X	<input type="radio"/> Ash or Clay Deposits Below Seep Outlet		N/A
D. Erosion		X	B. Boils <input type="radio"/> New <input type="radio"/> Existing		X
12. IMPOUNDMENT			<input type="radio"/> Clear or Muddy		N/A
A. Minimum Freeboard Required		N/A	<input type="radio"/> Flow Increase / Decrease		N/A
B. Actual Minimum Freeboard		N/A	<input type="radio"/> Growing in Size		N/A
C. Pool Elevation Measurement		N/A	C. Sinkholes/Depressions <input type="radio"/> New <input type="radio"/> Existing		X
13. DIKE INTERIOR/EXTERIOR SLOPES			16. SEEPAGE COLLECTION SYSTEM		
A. Instabilities (Sloughs or Slides)		X	A. Estimated Flow Measurement		N/A
B. Erosion	X		B. Increased Flow		N/A
C. Sinkholes/Depressions <input type="radio"/> New <input type="radio"/> Existing		X	C. Emitting Clear or Dirty Water		N/A
D. Vegetation / Brush / Trees (excessive)		X	17. SPILLWAY WEIRS & OUTLETS		
E. Animal Burrows X New <input type="radio"/> Existing		X	A. Decant Riser Misaligned		N/A
F. Seepage <input type="radio"/> New <input type="radio"/> Existing		X	B. Decant Pipe Joints Leaking/Separated		N/A
<input type="radio"/> Clear or Muddy		N/A	C. Headwall in Good Condition		N/A
<input type="radio"/> Increased Flow		N/A	D. Siphons/Emergency Spillway in Good Condition		N/A
<input type="radio"/> Ash or Clay Deposits Below Seep Outlet		N/A	18. OPERATIONS & MAINTENANCE		
G. Seep around Drain Pipe (s)		X	A. Routine O&M Performed	X	
14. DEFICIENCIES			B. Changes in Operations		X
A. Prior Deficiencies Checked		N/A	19. INSTRUMENTATION		
B. New Deficiencies Identified / Flagged		X	A. Instrumentation readings reviewed	X	
C. Immediate Actions Taken (Note Below)		X	B. Instrumentation functioning properly	X	
D. Photos of deficiencies attached		N/A	C. Physical Damage to Instrumentation		X

20. Major adverse changes in these items could cause instability and should be investigated more closely as soon as possible for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, etc.) in the space below. General inspection comments and observations should also be noted below.

The Bottom Ash Pond no longer receives flows from the CUF plant. All process flows and stormwater flows bypass this facility or are conveyed through the site via HDPE piping. All free water had been removed. The interior of the facility is generally covered in vegetation and has been graded to drain to two headwalls.

12. Facility no longer impounds water.

13B. A newly identified erosion feature along the interior drainage ditch was flagged in the field and reported to TVA for maintenance activities.

14. No prior deficiencies identified. No deficiencies related to structural deficiencies were identified during this inspection. Minor observations of features requiring maintenance were flagged in the field and reported to appropriate TVA personnel.

16. Facility does not contain a seepage collection system.

17. Facility does not contain a spillway or siphon system.

19. Instrumentation with available data on TVA's iSite Central were reviewed and confirmed to be functioning properly.

21. Who was Notified of New Deficiency: (Date / Time) N/A

22. I hereby attest the above is based on actual field observations made during the period indicated, by either myself or an appointed representative and are accurate, complete, and correct to the best of my knowledge.

Period Covered:

From: June 2021 To: May 2022

Signature: Jamey Dotson

Date: July 28, 2022

FY2022 Annual Engineering Inspection of CCR Facilities
Cumberland Fossil Plant
Photo Log



Photo C-1	View of the Bottom Ash Pond. General conditions, no deficiencies observed.
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Photo C-2	View of the Bottom Ash Pond. General conditions, no deficiencies observed.
------------------	--

Cumberland Fossil Plant

Legend
Photo Location



Google Earth

Notes:

1. Locations shown were obtained in the field using mobile devices and are subject to limitations of devices' GSP accuracy. Locations should be considered approximate.

SITE LAYOUT
STILLING POND (INCLUDING RETENTION POND), BOTTOM
ASH POND, GYPSUM STORAGE AREA, DRY ASH STACK
CUMBERLAND FOSSIL PLANT



Geosyntec
consultants

FIGURE

C-1

PROJECT NO: TN8439

JULY 2022

CUF Instrumentation Data

Facility: Bottom Ash Pond

Instrument¹	Instrument Type	Maximum Reading Since Previous Inspection² (ft)	Date Maximum Reading Recorded
CUF_PZ_BASHP_4D_1	Piezometer	383.2	8/22/2021
CUF_PZ_BASHP_4D_2	Piezometer	382.4	8/22/2021
CUF_PZ_BASHP_4D_3	Piezometer	384.4	4/26/2022
CUF_PZ_BASHP_4D_4	Piezometer	386.0	8/26/2021
CUF_PZ_BASHP_4D_5	Piezometer	390.1	6/9/2022
CUF_PZ_BASHP_4E_1	Piezometer	383.9	4/14/2022
CUF_PZ_BASHP_4E_3	Piezometer	384.7	1/10/2022
CUF_PZ_BASHP_4E_4	Piezometer	383.9	1/10/2022
CUF_PZ_BASHP_4E_5	Piezometer	384.5	1/9/2022

1: See Instrumentation Layout for location of instruments

2: Maximum recorded reading for piezometers is the measured piezometric reading.

Attachment D

Gypsum Storage Area Documents

- Inspection Checklist
- Photo Log
- Site Layout
- Instrumentation Summary



LANDFILL ANNUAL INSPECTION

1. Site Name: Cumberland Fossil Plant 2. Facility Name: Gypsum Storage Area 3. Date: May 25, 2022
 4. Type: X Quarterly X Engineering
 5. Operator Name: TVA 6. Hazard Classification: Significant
 7. Inspector's Names: Jamey Dotson, Max Cange, Daisy McMillion
 8. Weather Conditions / Temperature: Partly Cloudy and approximately 79 degrees

Check the appropriate box below. If not applicable, record "N/A". Provide comments when appropriate. Any other areas that should be investigated more closely should also be noted in the "Comments" section. Indicate the locations of any areas identified, and photograph and attach to the form. Previous observation forms should be reviewed and any NEW observations or degradation of previous conditions should be reported on this observation form.

	Yes	No		Yes	No
9. Pre-Job Safety Briefing Performed	X		14. LEACHATE COLLECTION SYSTEM		
10. Activity / Construction on / at facility	X		A. Operating Properly		N/A
11. STACK CREST & SLOPES			o Pumps		N/A
A. Settlement / Cracking		X	o Less than 1 foot (30 cm) of head on liner		N/A
B. Rutting		X	o Piping		N/A
C. Lateral Displacement		X	o Tanks		N/A
D. Erosion		X	15. PERIMETER DRAINAGE DITCHES & DOWNDRAINS		
E. Instabilities (Sloughs or Slides)		X	A. Erosion in Ditches or Downdrains	X	
12. DIKE SLOPES & TOE AREA			B. Vegetation Maintained		X
A. Instabilities (Sloughs or Slides)		X	C. Adequate Riprap Protection Provided	X	
B. Erosion		X	D. Drainage Pipes Silted/Impeded		X
C. Sinkholes/Depressions o New o Existing		X	16. OPERATIONS & MAINTENANCE		
D. Vegetation / Brush / Trees (excessive)	X		A. Routine O&M Performed	X	
E. Animal Burrows X New o Existing	X		B. Changes in Operations		X
F. Seepage o New o Existing		X	C. Adequate Dust Control	X	
o Clear or Muddy		N/A	D. Excessive standing/ponding water		X
o Increased Flow		N/A	17. INSTRUMENTATION		
o Ash or Clay Deposits Below Seep Outlet		N/A	A. Instrumentation readings reviewed	X	
G. Seep around Drain Pipe (s)		X	B. Instrumentation functioning properly	X	
13. DEFICIENCIES			C. Physical Damage to Instrumentation		X
A. Prior Deficiencies Checked		N/A			
B. New Deficiencies Identified / Flagged		X			
C. Immediate Actions Taken (Note Below)		X			
D. Photos of deficiencies attached		N/A			

18. Major adverse changes in these items could cause instability and should be investigated more closely as soon as possible for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, etc.) in the space below. General inspection comments and observations should also be noted below.

A good stand of grass was observed on the slopes of the perimeter of the facility. All pipe inlets and outlets were observed during this inspection and appear to be in good condition. Material placement activities were ongoing at the time of the inspection.

12D/E. Observations including a minor animal burrow along southeast perimeter access road and areas of poor vegetative cover were flagged in the field and reported to TVA for maintenance activities.

13. No prior deficiencies identified. No deficiencies related to structural deficiencies were identified during this inspection. Minor observations of features requiring maintenance were flagged in the field and reported to appropriate TVA personnel.

14. Facility does not contain a leachate collection system.

15A/B. Observations of an erosion channel along the southwest drainage flume and vegetation growth in two stormwater culverts were flagged in the field and reported to TVA for maintenance activities.

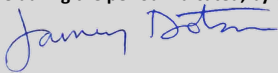
17. Instrumentation with available data on TVA's iSite Central were reviewed and confirmed to be functioning properly.

21. Who was Notified of New Deficiency: (Date / Time) N/A

20. I hereby attest the above is based on actual field observations made during the period indicated, by either myself or an appointed representative and are accurate, complete, and correct to the best of my knowledge.

Period Covered:

From: March 2021 To: March 2022

Signature: 

Date: July 28, 2022

FY2022 Annual Engineering Inspection of CCR Facilities
Cumberland Fossil Plant
Photo Log



Photo D-1	View of top interior of the Gypsum Storage Area. General conditions, no deficiencies observed.
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Photo D-2	View of northern dike of the Gypsum Storage Area. General conditions, no deficiencies observed.
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FY2022 Annual Engineering Inspection of CCR Facilities
Cumberland Fossil Plant
Photo Log



Photo D-3	View of southern exterior slope of the Gypsum Storage Area. General conditions, no deficiencies observed.
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Cumberland Fossil Plant

Legend
Photo Location



Google Earth

Notes:

- 1. Locations shown were obtained in the field using mobile devices and are subject to limitations of devices' GSP accuracy. Locations should be considered approximate.

SITE LAYOUT
STILLING POND (INCLUDING RETENTION POND), BOTTOM
ASH POND, GYPSUM STORAGE AREA, DRY ASH STACK
CUMBERLAND FOSSIL PLANT



Geosyntec
consultants

FIGURE

D-1

PROJECT NO: TN8439

JULY 2022

CUF Instrumentation Data
Facility: Gypsum Storage Area

Instrument¹	Instrument Type	Maximum Reading Since Previous Inspection² (ft)	Date Maximum Reading Recorded
CUF_PZ21	Piezometer	387.5	5/19/2022
CUF_PZ22A	Piezometer	386.6	4/15/2022
CUF_PZ28	Piezometer	382.4	2/28/2022
CUF_PZ29	Piezometer	389.5	8/21/2021
CUF_PZ36	Piezometer	389.4	4/14/2022
CUF_PZ37	Piezometer	392.4	8/1/2021
CUF_PZ42	Piezometer	384.1	4/12/2022
CUF_PZ43	Piezometer	390.1	4/18/2022
CUF_GSA_G_1_1	Piezometer	394.1	2/28/2022
CUF_GSA_G_1_2	Piezometer	395.8	7/2/2021
CUF_GSA_G_2_1	Piezometer	397.4	6/10/2021
CUF_GSA_G_2_2	Piezometer	387.2	4/22/2022
CUF_GSA_G_2_3	Piezometer	387.2	4/26/2022
CUF_H_2A_PZ1	Piezometer	436.2	2/26/2022
CUF_H_2A_PZ2	Piezometer	416.4	6/22/2021
CUF_H_2A_PZ3	Piezometer	394.6	2/26/2022
CUF_H_2A_PZ4	Piezometer	344.1	2/26/2022
CUF_H_2A_PZ5	Piezometer	321.3	3/15/2022
CUF_H_2B_PZ1	Piezometer	373.7	2/26/2022
CUF_H_2B_PZ2	Piezometer	367.7	2/26/2022
CUF_H_2B_PZ3	Piezometer	396.7	2/26/2022
CUF_H_2B_PZ4	Piezometer	401.6	1/10/2022
CUF_H_2C_PZ1	Piezometer	364.4	2/26/2022
CUF_H_2C_PZ2	Piezometer	371.6	2/27/2022
CUF_H_2C_PZ3	Piezometer	386.7	2/26/2022
CUF_H_2C_PZ4	Piezometer	387.6	2/26/2022
CUF_H_2C_PZ5	Piezometer	392.0	8/21/2021
CUF_GSA_J_1_1	Piezometer	373.1	2/26/2022
CUF_GSA_J_1_2	Piezometer	370.1	2/26/2022
CUF_GSA_M_1_1	Piezometer	392.1	4/14/2022
CUF_GSA_M_1_2	Piezometer	390.5	4/14/2022
CUF_GSA_M_2_1	Piezometer	403.5	2/26/2022
CUF_GSA_M_2_2	Piezometer	393.2	5/17/2022
CUF_GSA_M_2_3	Piezometer	386.5	4/14/2022
CUF_GSA_INT_1_1	Piezometer	394.8	6/9/2021
CUF_GSA_INT_1_2	Piezometer	395.8	6/9/2021
CUF_GSA_INT_1_3	Piezometer	396.2	6/9/2021
CUF_GSA_INT_1_4	Piezometer	397.1	6/9/2021
CUF_GSA_INT_1_5	Piezometer	398.5	4/26/2022
CUF_GSA_INT_2_1	Piezometer	394.0	2/26/2022
CUF_GSA_INT_2_2	Piezometer	390.8	2/26/2022
CUF_GSA_INT_2_3	Piezometer	390.0	2/26/2022
CUF_GSA_L_1_1	Piezometer	415.2	9/11/2021
CUF_GSA_L_1_2	Piezometer	399.7	2/26/2022

CUF Instrumentation Data
Facility: Gypsum Storage Area

Instrument¹	Instrument Type	Maximum Reading Since Previous Inspection² (ft)	Date Maximum Reading Recorded
CUF_GSA_L_1_3	Piezometer	397.8	2/26/2022
CUF_GSA_L_1_4	Piezometer	395.6	2/26/2022
CUF_GSA_L_1_5	Piezometer	393.6	2/26/2022
CUF_GOC_K_1_1	Piezometer	373.8	2/26/2022
CUF_GOC_K_1_2	Piezometer	373.7	1/11/2022
CUF_PZ_K2D_1	Piezometer	398.1	4/22/2022
CUF_PZ_K2D_2	Piezometer	398.4	4/22/2022
CUF_PZ_K2D_3	Piezometer	399.4	4/19/2022
CUF_PZ_K2D_4	Piezometer	399.8	4/22/2022
CUF_PZ_K2D_5	Piezometer	403.2	4/23/2022
CUF_PZ_K2E_1	Piezometer	394.4	2/26/2022
CUF_PZ_K2E_2	Piezometer	395.1	2/26/2022
CUF_PZ_K2E_3	Piezometer	395.5	2/26/2022
CUF_PZ_K2E_4	Piezometer	397.8	2/27/2022
CUF_PZ_K2E_5	Piezometer	396.0	9/12/2021
CUF_PZ_K2F_3	Piezometer	387.0	2/26/2022
CUF_PZ_N2C_1	Piezometer	383.5	8/22/2021
CUF_PZ_N2C_2	Piezometer	385.8	10/18/2021
CUF_PZ_N2C_3	Piezometer	384.9	10/18/2021
CUF_PZ_N2B_1	Piezometer	385.4	2/25/2022
CUF_PZ_N2B_2	Piezometer	386.8	4/18/2022
CUF_PZ_N2B_3	Piezometer	396.3	4/19/2022
CUF_PZ_N2B_4	Piezometer	392.1	4/19/2022
CUF_PZ_N2B_5	Piezometer	395.0	2/26/2022
CUF_PZ_N2A_1	Piezometer	384.3	2/25/2022
CUF_PZ_N2A_2	Piezometer	387.7	4/19/2022
CUF_PZ_N2A_3	Piezometer	389.1	4/19/2022
CUF_PZ_N2A_4	Piezometer	394.5	4/22/2022
CUF_PZ_N2A_5	Piezometer	394.9	4/19/2022
CUF_PZ_N2A_6	Piezometer	401.0	2/26/2022
CUF_IN21A	Slope Inclinator	<0.2 inches	5/9/2022
CUF_IN21B	Slope Inclinator	<0.2 inches	1/25/2022
CUF_IN29A	Slope Inclinator	<0.2 inches	5/24/2022
CUF_IN37A	Slope Inclinator	<0.2 inches	3/26/2022
CUF_IN43A	Slope Inclinator	<0.2 inches	4/25/2022

1: See Instrumentation Layout for location of instruments

2: Maximum recorded reading for piezometers is the measured piezometric reading and for slope inclinometers is deflection.

Attachment E

Dry Ash Stack Documents

- Inspection Checklist
- Photo Log
- Site Layout
- Instrumentation Summary



LANDFILL ANNUAL INSPECTION

1. Site Name: Cumberland Fossil Plant 2. Facility Name: Dry Ash Stack 3. Date: May 25, 2022
 4. Type: X Quarterly X Engineering
 5. Operator Name: TVA 6. Hazard Classification: Significant
 7. Inspector's Names: Jamey Dotson, Max Cange, Daisy McMillion
 8. Weather Conditions / Temperature: Partly Cloudy and approximately 79 degrees

Check the appropriate box below. If not applicable, record "N/A". Provide comments when appropriate. Any other areas that should be investigated more closely should also be noted in the "Comments" section. Indicate the locations of any areas identified, and photograph and attach to the form. Previous observation forms should be reviewed and any NEW observations or degradation of previous conditions should be reported on this observation form.

	Yes	No		Yes	No
9. Pre-Job Safety Briefing Performed	X		14. LEACHATE COLLECTION SYSTEM		
10. Activity / Construction on / at facility	X		A. Operating Properly		N/A
11. STACK CREST & SLOPES			o Pumps		N/A
A. Settlement / Cracking		X	o Less than 1 foot (30 cm) of head on liner		N/A
B. Rutting	X		o Piping		N/A
C. Lateral Displacement		X	o Tanks		N/A
D. Erosion	X		15. PERIMETER DRAINAGE DITCHES & DOWNDRAINS		
E. Instabilities (Sloughs or Slides)		X	A. Erosion in Ditches or Downdrains		X
12. DIKE SLOPES & TOE AREA			B. Vegetation Maintained		X
A. Instabilities (Sloughs or Slides)		X	C. Adequate Riprap Protection Provided	X	
B. Erosion		X	D. Drainage Pipes Silted/Impeded		X
C. Sinkholes/Depressions o New o Existing		X	16. OPERATIONS & MAINTENANCE		
D. Vegetation / Brush / Trees (excessive)		X	A. Routine O&M Performed	X	
E. Animal Burrows X New o Existing	X		B. Changes in Operations		X
F. Seepage o New o Existing		X	C. Adequate Dust Control	X	
o Clear or Muddy		N/A	D. Excessive standing/ponding water		X
o Increased Flow		N/A	17. INSTRUMENTATION		
o Ash or Clay Deposits Below Seep Outlet		N/A	A. Instrumentation readings reviewed	X	
G. Seep around Drain Pipe (s)		X	B. Instrumentation functioning properly	X	
13. DEFICIENCIES			C. Physical Damage to Instrumentation	X	
A. Prior Deficiencies Checked	X				
B. New Deficiencies Identified / Flagged		X			
C. Immediate Actions Taken (Note Below)		X			
D. Photos of deficiencies attached		N/A			

18. Major adverse changes in these items could cause instability and should be investigated more closely as soon as possible for further evaluation. Adverse conditions noted in these items should normally be described (extent, location, etc.) in the space below. General inspection comments and observations should also be noted below.

A good stand of grass was observed on the slopes of the perimeter of the facility. Drainage features were observed during this inspection and appear to be in good condition. Material placement activities were ongoing at the time of the inspection.

11B/D. Observations, including an erosion channel in the interim cover on the top deck and an area of rutting near the eastern access, were flagged in the field and reported to TVA for maintenance activities.

12E. Numerous minor animal burrows were observed along the dike slopes. One major animal burrow was observed on the southwest slope adjacent to CUF_PZ_F2A. Features were flagged in the field and reported to TVA for maintenance activities.

13. No prior deficiencies identified. No deficiencies related to structural deficiencies were identified during this inspection. Minor observations of features requiring maintenance were flagged in the field and reported to appropriate TVA personnel.

14. Facility does not contain a leachate collection system.

15B. Areas of poor vegetation were observed in the facility and reported to TVA for maintenance activities.

17. Instrumentation with available data on TVA's iSite Central were reviewed and confirmed to be functioning properly. The flush mount instrument cover at CUF_DAS_C_1 was observed to be damaged during this inspection.

21. Who was Notified of New Deficiency: (Date / Time) N/A

20. I hereby attest the above is based on actual field observations made during the period indicated, by either myself or an appointed representative and are accurate,

Period Covered:

From: June 2021 To: May 2022

Signature: Jamey Dotson

Date: July 28, 2022

FY2022 Annual Engineering Inspection of CCR Facilities
Cumberland Fossil Plant
Photo Log

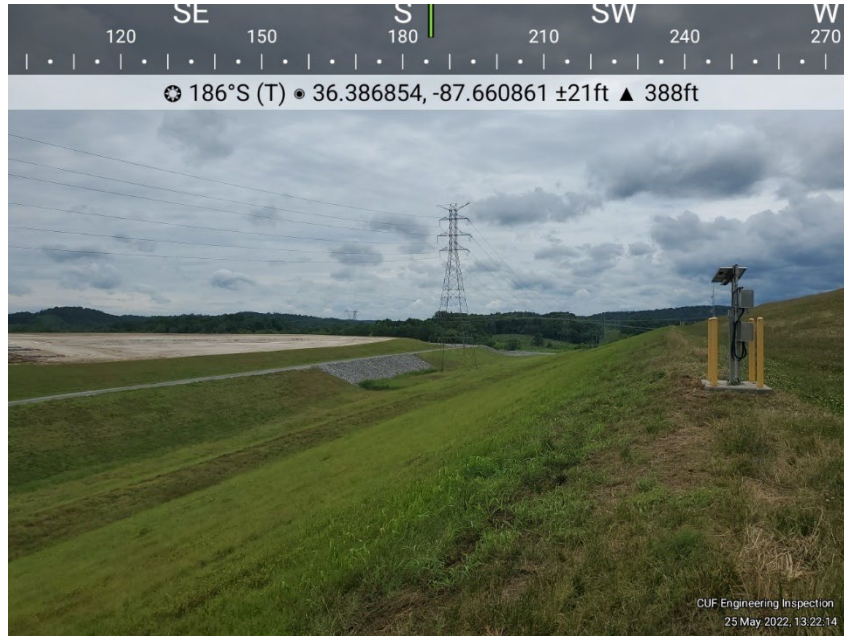


Photo E-1	View of the southeastern exterior slope of the Dry Ash Stack. General conditions, no deficiencies observed.
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Photo E-2	View of the northern perimeter ditch at the toe of the Dry Ash Stack. General conditions, no deficiencies observed.
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FY2022 Annual Engineering Inspection of CCR Facilities
Cumberland Fossil Plant
Photo Log



Photo E-3	View of interim covered interior portion of the Dry Ash Stack. General conditions, no deficiencies observed.
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Photo E-4	Drainage feature connecting to perimeter road west of the Dry Ash Stack. General conditions, no deficiencies observed.
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Cumberland Fossil Plant

Legend
Photo Location



Google Earth

Notes:

1. Locations shown were obtained in the field using mobile devices and are subject to limitations of devices' GSP accuracy. Locations should be considered approximate.

SITE LAYOUT
STILLING POND (INCLUDING RETENTION POND), BOTTOM
ASH POND, GYPSUM STORAGE AREA, DRY ASH STACK
CUMBERLAND FOSSIL PLANT



Geosyntec
consultants

FIGURE

E-1

PROJECT NO: TN8439

JULY 2022

CUF Instrumentation Data**Facility: Dry Ash Stack**

Instrument¹	Instrument Type	Maximum Reading Since Previous Inspection² (ft)	Date Maximum Reading Recorded
CUF_PZ3A	Piezometer	367.9	6/9/2021
CUF_PZ09	Piezometer	368.3	6/20/2021
CUF_PZ15A	Piezometer	383.2	4/16/2022
CUF_F_2A_PZ1	Piezometer	364.0	2/26/2022
CUF_F_2A_PZ2	Piezometer	382.6	2/26/2022
CUF_F_2A_PZ3 ³	Piezometer	392.7	7/1/2021
CUF_F_2A_PZ4 ³	Piezometer	410.7	1/13/2022
CUF_F_2B-PZ1	Piezometer	360.8	2/26/2022
CUF_F_2B-PZ2	Piezometer	375.0	2/26/2022
CUF_F_2B-PZ3	Piezometer	382.7	2/26/2022
CUF_F_2B-PZ4	Piezometer	383.4	4/22/2022
CUF_F_2B-PZ5 ³	Piezometer	391.1	1/11/2022
CUF_DAS_A_1_1	Piezometer	359.4	6/9/2021
CUF_DAS_A_1_2	Piezometer	370.8	7/23/2021
CUF_DAS_A_1_3	Piezometer	356.7	7/23/2021
CUF_DAS_A_2_1	Piezometer	381.0	6/9/2021
CUF_DAS_A_2_2	Piezometer	376.0	9/1/2021
CUF_DAS_A_2_3	Piezometer	361.3	7/23/2021
CUF_DAS_A_2_4	Piezometer	357.5	7/23/2021
CUF_DAS_C_1_1	Piezometer	365.2	2/26/2022
CUF_DAS_C_1_2	Piezometer	372.2	2/26/2022
CUF_DAS_D_1_1	Piezometer	374.7	1/10/2022
CUF_DAS_D_1_2	Piezometer	369.1	6/12/2021
CUF_DAS_D_1_3	Piezometer	369.1	6/12/2021
CUF_DAS_D_2_1	Piezometer	379.7	4/27/2022
CUF_DAS_D_2_2	Piezometer	379.5	4/22/2022
CUF_DAS_D_2_3	Piezometer	370.1	6/15/2021
CUF_DAS_D_3_1 ³	Piezometer	401.8	1/11/2022
CUF_DAS_D_3_2	Piezometer	396.4	4/12/2022
CUF_DAS_D_3_3	Piezometer	379.6	4/27/2022
CUF_DAS_D_3_4	Piezometer	379.5	4/27/2022
CUF_DAS_D_3_5 ⁴	Piezometer	426.8	9/25/2021
CUF_DAS_G_1_1	Piezometer	388.0	4/19/2022
CUF_DAS_G_1_2	Piezometer	387.7	4/22/2022
CUF_DAS_G_1_3	Piezometer	387.0	4/22/2022
CUF_DAS_G_2_1	Piezometer	424.0	1/13/2022
CUF_DAS_G_2_2	Piezometer	403.9	3/1/2022
CUF_DAS_G_2_3 ³	Piezometer	371.7	6/30/2021
CUF_DAS_G_2_4	Piezometer	387.2	4/22/2022
CUF_DAS_G_2_5	Piezometer	384.2	6/9/2021
CUF_DAS_X_1_1	Piezometer	381.6	6/9/2021
CUF_DAS_X_1_2	Piezometer	379.5	6/9/2021
CUF_DAS_X_1_3	Piezometer	375.1	6/9/2021

CUF Instrumentation Data

Facility: Dry Ash Stack

Instrument¹	Instrument Type	Maximum Reading Since Previous Inspection² (ft)	Date Maximum Reading Recorded
CUF_DAS_X_2_1	Piezometer	402.9	6/9/2021
CUF_DAS_X_2_2	Piezometer	381.3	6/9/2022
CUF_DAS_X_2_3	Piezometer	378.6	8/21/2021
CUF_DAS_X_2_4 ³	Piezometer	358.1	7/24/2021
CUF_DAS_INT_1_1 ³	Piezometer	413.8	6/9/2021
CUF_DAS_INT_1_2 ³	Piezometer	393.4	2/28/2022
CUF_DAS_INT_1_3	Piezometer	386.0	6/10/2021
CUF_DAS_INT_1_4	Piezometer	385.3	6/9/2021
CUF_DAS_INT_1_5	Piezometer	359.4	5/2/2022
CUF_DAS_INT_2_1	Piezometer	409.6	1/11/2022
CUF_DAS_INT_2_2	Piezometer	389.8	6/10/2021
CUF_DAS_INT_2_3	Piezometer	389.3	6/22/2021
CUF_DAS_INT_2_4	Piezometer	382.0	7/23/2021
CUF_DAS_INT_2_5	Piezometer	357.3	7/23/2021
CUF_PZ_2F2_1	Piezometer	364.1	2/27/2022
CUF_PZ_2F2_2	Piezometer	364.0	2/28/2022
CUF_PZ_2F2_3	Piezometer	367.3	3/1/2022
CUF_PZ_2F2_4	Piezometer	372.9	2/26/2022
CUF_PZ_2F2_5	Piezometer	384.9	9/23/2022
CUF_PZ_C1B_1	Piezometer	362.4	4/22/2022
CUF_PZ_C1B_2	Piezometer	363.5	4/22/2022
CUF_PZ_C1B_3	Piezometer	363.3	9/19/2022
CUF_PZ_C1B_4	Piezometer	371.4	6/9/2021
CUF_PZ_C1B_5	Piezometer	386.1	9/12/2022
CUF_PZ_C2D_1	Piezometer	356.8	7/23/2021
CUF_PZ_C2D_2	Piezometer	362.5	7/23/2022
CUF_PZ_C2D_3	Piezometer	365.6	6/22/2021
CUF_PZ_C2D_4	Piezometer	380.5	2/26/2022
CUF_PZ_C2D_5	Piezometer	384.6	7/8/2021
CUF_PZ_C2D_6 ³	Piezometer	400.6	5/24/2022
CUF_PZ_F4E_1	Piezometer	364.5	2/26/2022
CUF_PZ_F4E_2	Piezometer	374.1	2/26/2022
CUF_PZ_F4E_3	Piezometer	382.9	2/26/2022
CUF_PZ_F4E_4	Piezometer	382.8	2/26/2022
CUF_PZ_F4E_5	Piezometer	386.7	4/22/2022
CUF_IN09A	Slope Inclinometer	<0.2 inches	5/24/2022
CUF_IN15B	Slope Inclinometer	0.4 inches	10/8/2021

1: See Instrumentation Layout for location of instruments

2: Maximum recorded reading for piezometers is the measured piezometric reading and for slope inclinometers is deflection.

3. Piezometer readings were below the piezometer tip elevation since the previous inspection.

4. Piezometer readings were erroneous (i.e., exceeded the ground surface elevation) on at least one occasion since the previous inspection. Erroneous readings have been omitted from the maximum recorded readings presented herein.

Attachment F

CCR Rule Requirements Tables

Table 1. CCR Rule Requirements

Cumberland Fossil Plant 2022 Engineering (Annual) Inspection CCR Rule Section §257.83 - Inspection Requirements for CCR Surface Impoundments		
	Stilling Pond (including Retention Pond)	Bottom Ash Pond
Any changes in geometry of the impounding structure since the previous annual inspection	No	
Location and type of existing instrumentation and the maximum recorded readings of each instrument since the previous annual inspection	See Attachments A, B, and C	
Approximate minimum depth (elevation) of the impounded water since the previous annual inspection ²	N/A	N/A
Approximate maximum depth (elevation) of the impounded water since the previous annual inspection ²	N/A	N/A
Approximate present depth (elevation) of the impounded water ²	N/A	N/A
Approximate minimum depth (elevation) of the CCR material since the previous annual inspection ¹	0 ft (331 ft)	8 ft (382 ft)
Approximate maximum depth (elevation) of the CCR material since the previous annual inspection ¹	64 ft (395 ft)	42 ft (408 ft)
Approximate present depth (elevation) of the CCR material ¹	0 ft to 49 ft (331 ft to 380 ft)	8 ft to 42 ft (382 ft to 408 ft)
Storage capacity of the impounding structure at the time of the inspection ³	1,947,900 CY	34,400 CY
Approximate volume of impounded water at the time of the inspection ²	N/A	N/A
Approximate volume of CCR material at the time of the inspection ¹	1,233,600 CY	333,800 CY
Appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit	None observed, See Report and Attachment B	None observed, See Report and Attachment C
Any other changes which may have affected the stability or operation of the impounding structure since the previous annual inspection	None observed, See Report and Attachment B	None observed, See Report and Attachment C

1. The CCR depth and quantities provided were estimated based on available boring data, cross-sections, and survey information. TVA is currently performing a project to verify these estimated values.

2. Impounded water was removed as part of ongoing construction projects. Facilities no longer impound water.

3. Values based on the lowest top of dike elevation.

Table 2. CCR Rule Requirements

Cumberland Fossil Plant 2022 Engineering (Annual) Inspection CCR Rule Section §257.84 - Inspection Requirements for CCR Landfills		
	Gypsum Storage Area	Dry Ash Stack
Any changes in geometry of the structure since the previous annual inspection	No	Yes, See Attachment E
The approximate volume of CCR contained in the unit at the time of the inspection ¹	12,053,300 CY	11,142,000 CY
Appearances of an actual or potential structural weakness of the CCR unit, in addition to any existing conditions that are disrupting or have the potential to disrupt the operation and safety of the CCR unit	None observed, See Attachment D	None observed, See Attachment E
Any other changes which may have affected the stability or operation of the CCR unit since the previous annual inspection	None observed, See Attachment D	None observed, See Attachment E

1. The CCR quantities provided are estimated from available boring data, cross-sections, production material, and survey information.

Attachment G
Inspection Deficiency Table

Priority Level:

- 0 - Monitor for deteriorating or changing conditions
- 1 - Urgent - Correct Immediately
- 2 - Complete within 1 Week of Inspection
- 3 - Complete within 1 Month (30 days) of Inspection
- 4 - Complete within 6 Months of Original Entry Date
- 5 - Complete within 1 Year of Original Entry Date

Deficiency Category:

Structural - These deficiencies require immediate attention due to potential unstable conditions at the facility (slough, releases, etc.); engineering analyses could be required for these repairs.

Maintenance - Maintenance items include issues that TVA addresses based on standard guidelines and with routine Operations and Maintenance procedures of the facilities (erosion rills, animal burrows, etc.); the facility is stable.

Instrument Maintenance - These maintenance items require additional investigation by TVA to assess the condition of the instrumentation and determine if any corrective action is needed.

Monitor - This includes areas of interest that could potentially develop into maintenance or stability deficiencies; however, no action is required unless conditions deteriorate or subsequent inspections confirm a deficiency is present.

CUF 2022 Engineering Inspection Deficiency List							
Item No.	Description	Facility	Latitude ¹	Longitude ¹	Comment	Priority Level	Deficiency Category
1	Remote Station Elevations	Dry Ash Stack	36.390035	-87.665890	Remote readout stations CUF_RS_31 and CUF_RS_32 observed to be below ground surface elevation of the stack.	4	Instrument Maintenance
2	Erosion	Dry Ash Stack	36.390724	-87.663034	Erosion channel in inteirm cover on top deck of Dry Ash Stack.	5	Maintenance

1. Location coordinates were obtained in the field using mobile devices and are subject to limitations of devices' GPS accuracy. Locations should be considered approximate.