

# SOUTH CAROLINA ELECTRIC & GAS



## PLACEMENT ABOVE THE UPPERMOST AQUIFER CERTIFICATION

FOR THE  
**WATEREE STATION**  
**FGD POND**  
RICHLAND COUNTY, SOUTH CAROLINA

OCTOBER 2018



## **1 OVERVIEW**

The EPA Administrator, Gina McCarthy, signed the Disposal of Coal Combustion Residuals from Electric Utilities final rule on December 19, 2014, and it was published in the Federal Register (FR) on April 17, 2015. The regulations provide a comprehensive set of requirements for the safe disposal of coal combustion residuals (CCRs), commonly known as coal ash, from coal-fired power plants. The rule is administered as part of the Resource Conservation and Recovery Act [RCRA, 42 United States Code (U.S.C.) §6901 et seq.], using the Subtitle D approach.

South Carolina Electric & Gas (SCE&G) is subject to the CCR Rule. Based on SCE&G's review of the rule, the **FGD Pond at SCE&G Wateree Station** have been determined to be existing CCR surface impoundment subject to the CCR rule requirements.

## **2 PURPOSE**

The purpose of this report is to document that the Wateree Station FGD Pond meets the requirements of CCR rule §257.60 – *Placement Above the Uppermost Aquifer*.

## **3 APPLICABLE REGULATIONS**

CCR rule §257.60 – *Placement Above the Uppermost Aquifer* states the following:

(a) New CCR landfills, existing and new CCR surface impoundments, and all lateral expansions of CCR units must be constructed with a base that is located no less than 1.52 meters (five feet) above the upper limit of the uppermost aquifer, or must demonstrate that there will not be an intermittent, recurring, or sustained hydraulic connection between any portion of the base of the CCR unit and the uppermost aquifer due to normal fluctuations in groundwater elevations (including the seasonal high water table). The owner or operator must demonstrate by the dates specified in paragraph (c) of this section.

## **4 CCR UNIT DESCRIPTION**

Wateree Station is coal-fired electric generation plant located along the Wateree River near Eastover, Richland County, South Carolina. The FGD Pond is used to manage wastewater generated from the flue gas desulfurization scrubber system. The FGD pond was constructed in accordance with construction permit (permit 19263-IW) issued from the South Carolina Department of Health and Environmental Control (SCDHEC) on December 7, 2009, and placed into operation in accordance with an operation approval issued by DHEC on April 10, 2010. Effluent discharge for the FGD Pond is regulated under NPDES Permit #SC0002038.

The FGD Pond includes two forebays (1.1 and 1.15-acres), a primary settling pond, and a secondary settling pond.

## **5 DISCUSSION OF THE POND AND THE UPPERMOST AQUIFER**

Extensive work has been completed in association with hydrogeology and uppermost aquifer levels at the CCR unit including work associated with the following:

- *Groundwater Monitoring Well Installation Report, EPA CCR Rule Compliance Monitoring Wells, South Carolina Electric & Gas, July 2016, revised January 2017, revised February 2018, for CCR facilities at Cope Station, Wateree Station and Williams Station*
- *Analysis of Groundwater Flow Rate and Direction, March 2018 Monitoring Data, EPA CCR Rule Compliance Monitoring Wells, South Carolina Electric & Gas, July 2018, for CCR facilities at Cope Station, Wateree Station and Williams Station*

To evaluate the separation between the base of the pond and the uppermost aquifer, the above reports were reviewed as well as the as-built record surveys for the pond construction. Figure 1 presents a plan view of the FGD Pond to include groundwater monitoring wells in the vicinity of the pond and the location/alignment of a cross-section. Figure 2 presents the cross-section view of the FGD Pond showing existing conditions, the base of the pond liner system, and groundwater elevation levels for the uppermost aquifer for groundwater monitoring events during the period 2016 to present. The cross-section profile alignment was selected based on the general groundwater flow direction per the above reports, with the alignment consistent with the general west northwest to east southeast flow of groundwater under the FGD Pond. Table 1 provides a summary of the groundwater elevations data.

The quantity of groundwater elevation data is sufficient (quarterly monitoring for 2 years) to be considered representative of normal groundwater conditions and fluctuations including seasonal highs. Based on the groundwater elevation data as shown on Figure 2, the separation between the base of the pond and the upper limit of the uppermost aquifer is greater than the required 1.52 meters (five feet), with the data indicating a greater than 10' separation.

## **6 CONCLUSION**

Given the hydrogeologic site conditions and existing groundwater elevation data, the CCR unit is constructed with a base that is located greater than 1.52 meters (five feet) above the upper limit of the uppermost aquifer and therefore CCR rule §257.60 is satisfied.



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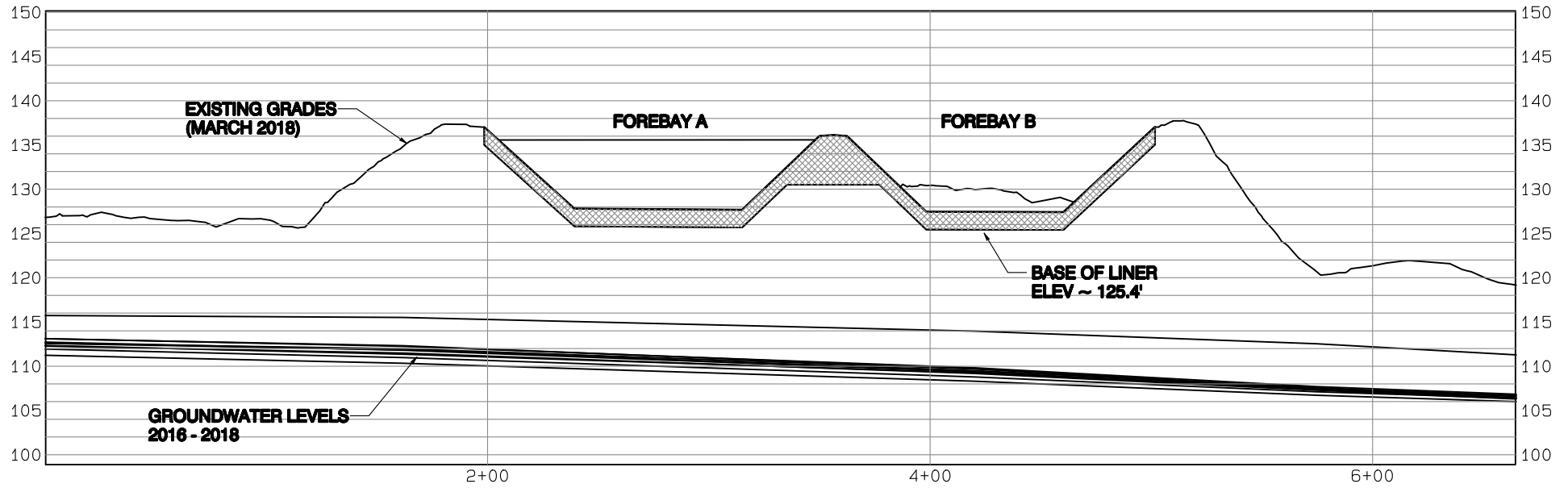


**WATEREE FGD POND  
GROUNDWATER WELLS  
& CROSS-SECTION PLAN**

JOB

FIG  
**1**





**Table 1**  
**EPA CCR Rule Compliance Monitoring Wells**  
**Historical Groundwater Elevations**  
**South Carolina Electric & Gas**  
**Wateree Station**

Monitoring Well ID	Northing	Easting	Ground Surface Elevation, ft.	5/12/2016	7/11/2016	9/20/2016	11/15/2016	1/17-18/2017	3/20-21/2017	5/22-23/2017	7/24-26/2017	9/26-27/2017	3/5-6/2018
				Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.	Groundwater Elevation, ft.
MW-LF-01	724422.17	2109943.03	146.40	126.17	126.17	125.83	125.71	125.63	125.92	126.25	126.19	125.90	124.87
MW-LF-06	722969.30	2109089.00	143.40	NM	NM	NM	116.72	116.52	116.69	116.99	117.15	116.98	116.10
MW-LF-07	723225.30	2111568.88	137.21	116.75	116.64	116.33	116.16	116.00	115.95	116.02	116.09	115.88	115.27
MW-LF-08	723452.61	2111821.22	134.86	113.11	112.89	112.88	112.66	113.14	112.86	113.18	113.17	112.70	111.97
MW-LF-10	724155.07	2112609.65	128.81	115.59	114.00	113.26	113.03	113.48	113.63	113.94	113.52	112.92	112.21
MW-LF-11	724642.46	2112705.85	132.68	116.38	113.65	113.81	113.71	114.24	114.42	114.73	114.19	113.64	112.74
MW-LF-22	723740.00	2112144.00	132.25	114.77	114.14	113.62	113.43	114.05	113.98	114.27	114.03	113.37	112.73
AS-LF-01	723447.18	2109886.93	147.08	NM	NM	NM	NM	NM	NM	NM	119.32	119.27	118.33
AS-LF-02	723707.62	2110529.03	146.77	NM	NM	NM	NM	NM	NM	NM	118.23	118.15	117.38
AS-LF-03	724920.02	211264.43	143.42	NM	NM	NM	NM	NM	NM	NM	120.35	119.63	118.46
MW-BG-73	725076.53	2110942.09	136.55	NM	NM	NM	NM	NM	NM	NM	NM	NM	130.37
MW-FGD-01	725119.04	2112576.51	135.98	117.31	115.87	115.17	115.02	116.28	115.85	116.15	116.07	114.98	114.17
MW-FGD-02	724122.09	2113682.29	118.36	111.72	103.38	105.34	105.14	105.08	104.92	105.13	105.12	104.97	104.54
MW-FGD-03	724333.56	2113719.92	120.52	111.99	104.99	105.98	105.77	105.77	105.65	105.87	105.81	105.61	105.20
MW-FGD-04	724607.60	2113714.70	120.06	112.54	107.48	107.54	107.28	107.51	107.36	107.68	107.51	107.10	106.71
MW-FGD-05	724803.15	2113792.50	120.51	112.59	108.32	108.13	107.81	108.34	108.00	108.44	108.21	107.75	107.41
AS-FGD-01	724487.41	2113311.99	123.36	115.53	111.26	111.07	110.75	111.28	110.94	111.38	110.45	109.98	109.32
AS-FGD-02	724232.05	2113781.63	117.63	109.66	105.39	105.20	104.88	105.41	105.07	105.51	104.65	104.52	104.12
AS-FGD-03	724389.47	2113924.68	116.55	108.65	104.38	104.19	103.87	104.40	104.06	104.50	103.58	104.42	104.02
MW-AP-01A	725454.70	2113347.00	124.48	115.44	114.06	114.19	113.69	115.37	114.39	114.79	114.06	113.93	113.33
MW-AP-01	722661.19	2116042.43	105.61	89.46	87.68	87.86	87.37	88.65	87.96	89.57	88.61	87.83	89.65
MW-AP-02	723041.75	2115914.91	108.45	87.66	85.07	84.63	84.01	85.70	84.91	88.78	86.18	84.93	88.00
MW-AP-03	723404.29	2115810.89	107.78	88.79	86.90	86.48	85.58	86.61	85.56	88.20	87.16	86.67	88.08
MW-AP-04	723755.23	2115961.71	96.49	88.65	85.66	86.61	85.22	86.21	85.28	87.36	86.51	86.22	88.13
MW-AP-05	724141.61	2116209.66	103.45	84.99	82.42	81.35	80.08	82.89	82.85	86.66	86.93	82.09	86.76
MW-AP-08	724561.66	2116081.94	100.99	85.28	82.61	81.64	80.29	83.04	83.01	86.78	86.97	77.45	86.90