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SCS ENGINEERS

January 13, 2018
SCS Project No. 16215106.00

Mr. Darryl Sparks
Compliance Manager
NAES Corporation
2161 Rattlesnake Road
Riesel, Texas 76682

Sent via email

Subject: Sandy Creek Energy Station
Coal Combustion Residual (CCR) Landfill
2017 Annual Inspection Report per 40 CFR §257.84(b)(2)

Dear Mr. Sparks:

SCS Engineers (SCS) is pleased to provide this 2017 annual inspection report for compliance with Title 40, Code of Federal Regulation (CFR) §257.84(b)(2), related to annual inspection of a coal combustion residual (CCR) landfill by a qualified engineer. The CCR landfill is located on the Sandy Creek Energy Station (facility) property at 2161 Rattlesnake Road, Riesel, Texas 76682 and is registered with Texas Commission of Environmental Quality (TCEQ) under Registration No. 88448.

BACKGROUND

The CCR landfill is classified as an existing landfill as defined under §257.53, which was constructed and commenced operation prior to October 14, 2015. The landfill is currently comprised of two CCR disposal cells, Cells 1 and 2, which commenced receiving waste in early 2013 and October 2014, respectively. The approximate area of Cells 1 and 2 are 10.0 and 14.3 acres, respectively.

The primary wastes disposed in the landfill are dry scrubber ash and bottom ash generated during the coal combustion process at the facility. Incidental wastes generated during the operation of the facility may also be disposed in the landfill, as described in the initial registration notification to TCEQ and the most recent version of the Operations Plan for the facility.

ANNUAL INSPECTION [§257.84(B)(1)]

An annual inspection of the landfill was performed on January 3, 2018 by Brett DeVries, Ph.D., P.E., a Professional Engineer registered in the State of Texas. An annual inspection checklist prepared during the inspection is attached to this report. At the time of the inspection, the facility was operational and the landfill was receiving waste.

Although the items described below and on the attached checklist were observed during the inspection, there were no existing conditions that appeared to have the potential to disrupt the

operation or safety of the landfill. Additionally, during the inspection no appearance of actual or potential structural weakness was observed. During the inspection, as noted in the attached checklist, the following items were observed:

- One (center) of three culverts located at the west side entrance (i.e., discharge of perimeter channel into pond) of the stormwater pond is blocked and unable to transmit uncontaminated surface water. Based on discussion with operation personnel, this does not result in ponding of surface water and will be monitored by operation personnel in the future.

- Minor erosion (less than 6-inches in depth) was observed on the southwest temporary interior sideslope (facing west to future Cell 3) of the intermediate cover of Cell 1. Underlying CCR waste was not observed as a result of the minor erosion. Based on discussions with operation personnel, the minor erosion was fixed the same day as the annual inspection.

- Based on visual observation, additional freeboard was suggested on a contact water diversion berm (located on the north slope of Subcell 2C) to prevent overflowing the berm and flowing into the perimeter uncontaminated surface water channel. Based on discussions with operation personnel, overflow has not occurred in the past. However, operation personnel increased the berm height the same day as the annual inspection as a preventative measure.

- In accordance with the leachate collection design, the geocomposite on the subcell separation berm in the active Subcell 2C is exposed to ultraviolet degradation. It should be noted that the sacrificial plastic on the inactive Subcell 2D side of the separation berm is present. Based on discussions with operation personnel, the geocomposite will be covered with waste in the next several months.

During the inspection, SCS also reviewed the weekly inspection reports prepared by a qualified person in accordance with §257.84(a). All required weekly inspections have been completed for calendar year 2017. Consistent with §257.84(b)(i), SCS reviewed the 2017 weekly inspections and prior 2016 annual inspection. Items noted during these inspections were similar to the items noted in this 2017 annual inspection, which were primarily related to ongoing challenges with erosion and stormwater (non-contaminated water) culverts. In addition, items observed during the 2016 annual inspection were corrected by operation personnel during 2017. Based on review of these inspections, operation personnel have routinely corrected or maintained the landfill facility, as weather allowed, for items identified in the inspections and during landfill operation.

Lastly during the inspection, consistent with §257.84(b)(i), SCS also reviewed all other documents in the Site Operation Record. All documents required to be in the Site Operating Record in accordance with §257.105 were present during the inspection.

In summary, based on the above described inspection and improvement plans (previously noted), in our opinion the design, construction, operation, and maintenance of the landfill is being performed consistent with recognized and generally accepted good engineering standards.

VOLUME OF IN-PLACE WASTE [§257.84(B)(2)(II)]

The approximate volume of CCR contained in the landfill at the time of the inspection was estimated in accordance with §257.84(b)(2)(ii). The landfill has been operational since early 2013.

Ground surveys of the landfill have been annually developed since April 2013, with the most recent survey being performed on November 29, 2017. Based on comparison of the as-built top of liner grades and existing grades at the time of the surveys, the landfill has approximately 767,957 cubic yards (CY) of CCR waste as of November 29, 2017 (provided by facility personnel). From November 29, 2017 to January 3, 2018 (date of annual inspection), the facility produced 744,683 MWh. Based on a rolling average 0.03 CY disposed/MWh produced, it was estimated that an additional 22,340 CY of CCR waste was disposed in the landfill during this time. Therefore, as of the date of the annual inspection, it is estimated that the landfill contained approximately 790,297 CY of CCR waste.

CLOSING

SCS appreciates the opportunity to perform the 2017 annual inspection of Sandy Creek Energy Station, CCR Landfill. Should you have any questions or require additional information on this inspection, please feel free to contract Brett DeVries, Ph.D., P.E. at 817-571-2288.

Sincerely,

Brett DeVries, Ph.D., P.E.
Project Engineer
SCS ENGINEERS
TBPE Registration No. F-3407

Ryan Kuntz, P.E.
Vice President
SCS ENGINEERS

Attachment: Coal Combustion Residual Landfill Annual Inspection Checklist

Sandy Creek Energy Station

Coal Combustion Residual Landfill Annual Inspection Checklist

40 CFR §257.84(b)(4) - Requires inspections on an annual basis by a Qualified Professional Engineer

Date and Time of Inspection: 1/3/2018 9:30 a.m.

Professional Engineer's Name: Brett DeVries, Ph.D., P.E.

Weather Summary at time of Inspection: 30°F, clear skies, little to no wind

Precipitation for the previous 7 days: None

1. Landfill Structure and Slope

Sloughing, Slumping, Sliding		Surface Cracking		Excessive Slope		Toe of Slope Moving		Inadequate Compaction	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	X		X		X		X		X

Inappropriate Vegetative Growth		Animal Burrows		Erosion Damage		Vehicle Damage	
Yes	No	Yes	No	Yes	No	Yes	No
	X		X	X[1]			X

Additional Observations: [1] See Section 2

2. Landfill Cover

Qualifier	Intermediate Soil Cover		Final Soil Cover		Bottom Ash Cover		Alternative Cover	
	Yes	No	Yes	No	Yes	No	Yes	No
Installed	X			X		X		X
Erosion	X[1]							
Location	Cell 1							

Additional Observations: [1] Minor erosion on the southwest temporary interior slope (facing future Cell 3) of Cell 1.

3A. Run-on and Run-off Control System

Uncontaminated Surface Water Management System

Qualifier	Diversion Berms		Downchutes		Perimeter Drainage Channels		Culverts		Detention Basins	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Inspection		NA	X[1]		X		X		X	
Damage		NA		X		X	X[2]			X
Type							Blockage			
Location			Subcell 2D and 2E[1]				Stormwater Pond Entrance			

Additional Observations: [1] Located on southwest slope of Subcells 2D and 2E to control uncontaminated surface water [2] One (center) of three culverts located on the west side of the stormwater pond is blocked and unable to transmit uncontaminated surface water.

3B. Run-on and Run-off Control System

Contact Water Management System

Qualifier	Diversion Berms		Drainage at Perimeter Berm		Drainage at Separation Berm		Culvert		Ponding of Contact Water		Release of Contact Water	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Inspection	**X**		**X**		**X**		**X**		**X**		**X**	
Damage		**X**[1]		**X**		**X**		**X**		**X**		**X**
Type	**Increase Berm Height**											
Location	**Subcell 2C**											

Additional Observations: [1] In an effort to prevent contact water overflow, the height of the diversion berm located on the north slope of Subcell 2C will be increased to provide additional freeboard.

4. Exposed Liner and Leachate Collection and Removal System

Qualifier	Intercell Berm Sacrificial Plastic		LCRS Riser Pipes		Leachate Sump Pump/Controls		Leachate Evaporation Pond		
	Yes	No	Yes	No	Yes	No	Yes	No	Freeboard (ft)
Inspection	**X**		**X**		**X**		**X**		**7**
Damage		**X**		**X**		**X**		**X**	**NA**
Type									**NA**
Location									**NA**

Qualifier	LCRS Ball Valve		Protective Cover		Exposed Geosynthetics	
	Yes	No	Yes	No	Yes	No
Inspection	**X**		**X**		**X**	
Damage		**X**		**X**		**X**[1]
Type					**Leachate Collection**	
Location					**Subcell 2C**	

Additional Observations: [1] Per leachate collection design, the geocomposite on the subcell seperation berm in active Subcell 2C is exposed. Sacrificial plastic on the inactive Subcell 2D side of the seperation berm is present.

5. Dust Emissions

Landfill		Haul Trucks		Ash Silo	
Yes	No	Yes	No	Yes	No
	X		**X**		**X**

Additional Observations:

6. Leachate Evaporation Pond Underdrain System

Sediment		Vegetation		Debris		Water Flow	
Yes	No	Yes	No	Yes	No	Yes	No
	X		**X**		**X**		**X**

Additional Observations:

7. Groundwater Monitoring System

Damage		Excess Vegetation		Lock Working		Housing Lid Functional		Insects in Housing		Housing Paint Peeling		Label Adequate	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
	X		**X**	**X**		**X**			**X**		**NA**	**X**	

Additional Observations: _____

8. Document Review

Description	Yes	No
Weekly Inspection Checklists Reviewed:	**X**	
All Weekly Inspections Completed:	**X**	
Site Operating Record Reviewed:	**X**	
All necessary documents maintained in Site Operating Record: (see attached Site Operating Record Checklist)	**X**	

Additional Observations: _____

Additional Comments/Observations/Recommendations: _____

Professional Engineer's Signature and Seal

1/3/2018

Date

SANDY CREEK ENERGY STATION
CCR LANDFILL ANNUAL SITE OPERATING RECORD REVIEW

					Maintained in Operating Record		
Primary Citation	**Description**	**Required**	**Deadline**	**Date Completed**	**Yes**	**No**	**NA**
§257.60(a)	Documentation of compliance with location restrictions: aquifer	Yes	10/17/2018	NA			**X**
§257.61(a)	Documentation of compliance with location restrictions: wetland	Yes	10/17/2018	NA			**X**
§256.62(a)	Documentation of compliance with location restrictions: seismic zone	Yes	10/17/2018	NA			**X**
§256.63(a)	Documentation of compliance with location restrictions: damage zone near fault lines	Yes	10/17/2018	NA			**X**
§257.64(a)	Documentation of compliance with location restrictions: unstable areas	Yes	10/17/2018	NA			**X**
§257.70(e)	Liner Design Certification	No	NA	NA			**X**
§257.70(f)	Liner Construction Certification	No	NA	NA			**X**
§257.80(b)	Fugitive Dust Control Plan	Yes	10/19/2015	10/18/2015	**X**		
§257.80(c)	Fugitive Dust Control Plan Annual Report	Yes	1 year after previous report completion	12/16/16 and 11/30/17	**X**		
§257.81(c)	Initial and Periodic run-on and run-off control system plan	Yes	10/17/2016, and every 5 years after initial plan	1/14/2016	**X**		
§257.84(a)	Weekly inspection reports	Yes	Weekly in 2016, 2017	Weekly in 2016, 2017	**X**		
§257.84(b)(2) and (3)	Annual Inspections	Yes	Due 1/19/2016 and 1 year after previous report completion	1/13/2016 and 1/13/17	**X**		
§257.84(b)(5)	Documentation of corrective measures for deficiency or release (based on annual report)	Yes	As soon as feasible	NA			**X**
§257.90(e)	Annual groundwater monitoring and corrective action report	Yes	1/31/2018, and Annual Report due 1 year after previous report completion	NA			**X**
§257.91(e)(1)	Documentation of design, installation, development, and decommissioning of GW Wells	Yes	10/17/2017	3/11/2016	**X**		
§257.91(f)	Groundwater Monitoring System certification	Yes	10/17/2017	3/11/2016	**X**		
§257.93(f)	Certification of selected statistical method for evaluating GW monitoring data	Yes	10/17/2017	3/2/2016	**X**		
§257.94(e)(3)	GW Assessment Monitoring Program establishment notification	Yes	30 days after plan establishment	NA			**X**
§257.95(d)(1)	GW Assessment monitoring program sampling and results	Yes	90 days after results, and on at least semiannual basis thereafter	NA			**X**
§257.95(e)	Notification of resuming GW detection monitoring program	Yes	30 days after program establishment	NA			**X**
§257.95(g)	Notification of GW constituent(s) being above protection standards	Yes	30 days after detection	NA			**X**
§257.96(d)	Assessment of GW corrective measures	Yes	90 days after detection	NA			**X**
§257.96(e)	Documentation recording public meeting for GW corrective measures assessment	Yes	After meeting	NA			**X**
§257.97(a)	Progress reports (Semiannually) for selecting and design remedy for GW corrective action	Yes	6 months after selection and design completion	NA			**X**
§257.98(e)	Notification and certification of GW remedy completion	Yes	After 30 days of completion	NA			**X**
§257.102(b)	Closure Plan	Yes	10/17/2016	10/14/2016	**X**		
§257.104(d)	Post-Closure Care Plan	Yes	10/17/2016	10/14/2016	**X**		