

January 13, 2020
SCS Project No. 16218157.00

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
2019 Annual Inspection Report per 40 CFR §257.84(b)(2)

Dear Mr. Sparks:

SCS Engineers (SCS) is pleased to provide this 2019 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 December 30, 2019 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 or changes from the previous annual inspection that appeared to have the potential to disrupt the operation, safety, or stability of the landfill [§257.84(b)(2)(iv)]. Additionally, during the inspection no appearance of actual or potential structural weakness was observed [§257.84(b)(2)(ii)].

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 of the stormwater pond (i.e., discharge of perimeter channel into 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 continue to be monitored by operation personnel.
- Minor erosion rills (less than 6-inches in depth) were observed on the intermediate cover of the interior slope of Cell 1 and exterior slopes of Cells 1 and 2 (east and south sideslopes). Underlying CCR waste was not observed (or exposed) in any location as a result of the minor erosion. Based on discussions with operation personnel, the erosion will be repaired and temporarily stabilized by seeding and/or the installation of temporary sideslope berms as soon as possible. It was evident that operation personnel repaired minor erosion rills throughout the year as the erosion rills develop. In addition, site personnel has installed temporary sideslope berms in potential high erosion areas in an effort to control erosion.
- The sacrificial plastic on the intercell berm was removed/damaged exposing the geocomposite on the subcell separation berm in the active Subcell 2D and geotextile around the leachate collection chimney drain in inactive Subcell 2E. Portions of the geotextile was removed/damaged on the leachate collection chimney drain in inactive Subcell 2E. Based on discussions with operation personnel, the sacrificial plastic and geotextile will be replaced in the near future.
- Excessive dust emissions were not observed during the inspection. Leachate evaporation pond, leachate evaporation pond underdrain system, and groundwater monitoring systems were observed to be functioning as designed.

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 2019. Consistent with §257.84(b)(i), SCS reviewed the 2019 weekly inspections and prior 2018 annual inspection. Items noted during the 2019 weekly inspections were similar to the items noted in this 2018 annual inspection, which were primarily related to ongoing challenges with erosion and stormwater (non-contaminated water) culverts. In addition, items observed during the 2019 annual inspection will be corrected by operation personnel as soon as possible (weather permitting). 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) and consistent with the previous annual inspection (dated 1/13/2019), in our opinion the design, construction, operation, and maintenance of the landfill (inclusive of the items inspected in the attached checklist) 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 developed since April 2013, with the most recent two surveys being performed on September 25, 2019 and January 6, 2020. The estimated airspace consumed between the two surveys is 32,200 cubic yards (CY) for a period of 103 days (provided by facility personnel). Therefore, the airspace consumed was converted to an average daily volume of approximately 313.6 cy/day. Based on comparison of the as-built top of liner grades and existing grades at the time of the surveys, the landfill has approximately 1,021,628 cubic yards of CCR waste as of September 25, 2019 (provided by facility personnel). In addition, based on the average daily volume of 313.6 cy/day, it is estimated that an additional 30,105 CY of CCR waste was disposed in the landfill between September 25, 2019 and December 30, 2019. **Therefore, as of the date of the annual inspection (December 30, 2019), it is estimated that the landfill contained approximately 1,051,733 CY of CCR waste.**

CLOSING

SCS appreciates the opportunity to perform the 2019 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/Satellite Office Manager
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) - Requires inspections on an annual basis by a Qualified Professional Engineer

Date and Time of Inspection: 12/30/2019 10:00 a.m.

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

Weather Summary at time of Inspection: 50°F, Sunny

Precipitation for the previous 7 days: 0.25 inches

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 (Annual Inspection Checklist)

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		N/A		N/A		N/A	
Erosion	X ¹							
Location	Cells 1 and 2							

Additional Observations: ¹ Minor erosion (less than 6-inches) on interior slope of Cell 1 (west of Subcell 2E) and exterior slopes Cell 1 and 2 (east and south side).

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	X		X ¹		X		X		X	
Damage		X		X		X	X ²			X
Type							Blockage			
Location			Subcell 2E ¹				Stormwater Pond Entrance			

Additional Observations: ¹ Located on east slope of Subcell 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 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		X		X		X		X		X
Type												
Location												

Additional Observations: _____

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		6
Damage	X ¹			X		X		X	NA
Type									
Location	Subcell 2D/2E								

Qualifier	LCRS Ball Valve		Protective Cover		Exposed Geosynthetics		
	Yes	No	Yes	No	Yes	No	
Inspection	X		X		X		
Damage		X		X	X ^{1,2}		
Type						Sacrificial Plastic & Geotextile	
Location							Subcell 2D/2E

Additional Observations: ¹ Sacrificial plastic cover was removed/damaged on Subcell 2D/2E separation berm and leachate collection chimney drain in inactive Subcell 2E.

² Portions of the geotextile was removed/damaged on the leachate collection chimney drain in inactive Subcell 2E.

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		X	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

12/30/2019

Date

**SANDY CREEK ENERGY STATION
CCR LANDFILL ANNUAL SITE OPERATING RECORD REVIEW**

Primary Citation	Description	Required	Deadline	Date Completed	Maintained in Operating Record		
					Yes	No	NA
§257.60(a)	Documentation of compliance with location restrictions: aquifer	Yes	No later than date of initial receipt of CCR in any lateral expansion (e.g. Cell 3)	NA			X
§257.61(a)	Documentation of compliance with location restrictions: wetland	Yes	No later than date of initial receipt of CCR in any lateral expansion (e.g. Cell 3)	NA			X
§256.62(a)	Documentation of compliance with location restrictions: seismic zone	Yes	No later than date of initial receipt of CCR in any lateral expansion (e.g. Cell 3)	NA			X
§256.63(a)	Documentation of compliance with location restrictions: damage zone near fault lines	Yes	No later than date of initial receipt of CCR in any lateral expansion (e.g. Cell 3)	NA			X
§257.64(a)	Documentation of compliance with location restrictions: unstable areas	Yes	10/17/2018	10/1/2018	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, 11/30/17, 12/18/18	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	10/14/2016	X		
§257.84(a)	Weekly inspection reports	Yes	Weekly in 2016, 2017, 2018	Weekly in 2016, 2017, 2018	X		
§257.84(b)(2) and (3)	Annual Inspections	Yes	Due 1/19/2016 and 1 year after previous report completion	1/13/2016, 1/13/17, 1/13/18	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	1/30/18, 1/30/19	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		