Solid Waste Management Consultants
and Contractors

1901 Central Drive
Suite 550
Bedford, Texas 76021- 5872

817 571-2288
FAX 817 571-2188
www.scsengineers.com

SCS ENGINEERS

January 13, 2017
SCS Project No. 16215106.00

Mr. Bryan Twitty
Engineering Manager
NAES Corporation
2161 Rattlesnake Road
Riesel, Texas 76682

Sent via email

Subject: Sandy Creek Energy Station
Coal Combustion Residual (CCR) Landfill
2016 Annual Inspection Report per 40 CFR §257.84(b)(2)

Dear Mr. Twitty:

SCS Engineers (SCS) is pleased to provide this 2016 annual inspection report for compliance with Title 40, Code of Federal Regulation (CFR) §257.84(b)(2), related to annual inspection of a 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 4, 2017 by Mr. Ryan Kuntz, P.E., a Professional Engineer registered in the State of Texas and Dr. Brett DeVries, E.I.T. 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.

It should be noted that the items observed during the inspection primarily were related to erosion of soil intermediate cover and liner protective cover due to unusually high rainfall during the spring months of calendar year 2016. 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:

- The north interior sideslope of Subcell 2B was steeper than 3H:1V. This slope extended from the toe of slope up approximately 30 feet to an intermediate top deck elevation. Based on review of this sideslope, no appearance of structural weakness or instability was observed. Based on discussions with operation personnel, this slope will be graded no steeper than a 3H:1V slope consistent with designed interior slope grade in the near future.

- Minor erosion was observed on the intermediate cover of the east slope of Cell 1 along the length of Subcells 2D and 2E. Underlying CCR waste was not observed as a result of the minor erosion. Based on discussions with operation personnel, the minor erosion will be fixed as soon as weather conditions allows.

- Protective sacrificial plastic was removed/missing from the intercell berms within inactive Subcells 2D and 2E (subcells without waste), and drainage geocomposite is exposed to ultraviolet degradation. The sacrificial plastic had deteriorated or blown off during inclement weather. Based on discussions with operation personnel, the sacrificial plastic will be replaced as soon as weather conditions allow.

- Erosion of the protective cover was observed on the west berm of Subcells 2D and 2E (inactive subcells without waste) where drainage geocomposite is exposed. Based on discussions with operation personnel, the protective cover will be repaired as soon as weather conditions allow.

- Sedimentation and vegetation were observed surrounding the leachate evaporation pond underdrain system; however, these did not impede the performance of the underdrain system. Based on discussions with operation personnel, the sedimentation and vegetation will be removed in the near future.

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 2016, with the exception the week of December 26th. However, a weekly and yearly inspection occurred the following week. Consistent with §257.84(b)(i), SCS reviewed the 2016 weekly inspections and prior 2015 annual inspection. Items noted during these inspections were similar to the items noted in this 2016 annual inspection, which were primarily related to ongoing challenges with erosion due to inclement weather throughout the second quarter of 2016. Based on review of these inspections, site personnel have routinely corrected or maintained the landfill facility, as weather allowed, for items identified in the inspections.

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 (noted above), 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 confirmed in accordance with §257.84(b)(2)(ii). The landfill has been operational since early 2013. It should be noted that the landfill did not receive CCR waste from October 31, 2015 to May 10, 2016.

Ground surveys of the landfill have been developed since April 2013, with the most recent survey being performed on October 11, 2016. Based on comparison of the as-built top of liner grades and existing grades at the time of the surveys, the landfill has approximately 537,465 cubic yards (CY) of CCR waste as of October 11, 2016 (provided by facility personnel). From October 11, 2016 to January 4, 2017, the facility produced 1,263,774 MWh. Based on a rolling average 0.03 CY disposed/MWh produced, an additional 37,913 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 575,378 CY of CCR waste.

CLOSING

SCS appreciates the opportunity to perform the 2016 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 Mr. Ryan Kuntz, P.E. at 817-571-2288.

Sincerely,

Ryan Kuntz, P.E.
Project Director
SCS ENGINEERS
TBPE Registration No. F-3407

Brett DeVries, Ph.D., E.I.T.
Senior Staff Professional
SCS ENGINEERS

Attachment: Coal Combustion Residual Landfill Annual Inspection Checklist

cc: Mr. Darryl Sparks, NAES Corporation

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: 1/4/2017 10:30 a.m.

Professional Engineer's Name: Ryan Kuntz, P.E.

Weather Summary at time of Inspection: 32˚F, cloudy skies, little wind

Precipitation for the previous 7 days: 0.23 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**[1]			**X**		**X**

Inappropriate Vegetative Growth		Animal Burrows		Erosion Damage		Vehicle Damage	
Yes	No	Yes	No	Yes	No	Yes	No
	X		**X**	**X**[2]			**X**

Additional Observations: [1] North temporary slope in Cell 2B is greater than 3.5H:1V.

[2] 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 east slope of Cell 1 along the length of Subcells 2D and 2E.

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**		**NA**	**X**		**X**		**X**	
Damage		**NA**		**NA**		**X**		**X**		**X**
Type										
Location										

Additional Observations:

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**			**X**		**X**		**X**	NA
Type	Missing/Removed								NA
Location	Subcell 2D/E and 2C/D								NA

Qualifier	LCRS Ball Valve		Protective Cover		Exposed Geosynthetics	
	Yes	No	Yes	No	Yes	No
Inspection	**X**		**X**		**X**	
Damage		**X**	**X**		**X**	
Type			Erosion		Erosion	
Location			Subcell 2D and 2E[1]		Subcell 2D and 2E[1]	

Additional Observations: [1] Minor erosion along west slopes of Subcells 2D and 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[1]		**X**[2]			**X**	**X**	

Additional Observations: [1] Sediment surrounding PVC outlet pipe (not clogged).

[2] Cattails downstream of underdrain PVC outlet pipe.

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

1/4/2017

Date