AECOM

Submitted to
San Miguel Electric
Cooperative, Inc.
6200 FM 3387
Christine, Texas 78012

Submitted by
AECOM
9400 Amberglen Boulevard
Austin, Texas 78729

January 10, 2018

CCR Annual Inspection §257.84 (b)

for the

Ash Pile

at the

San Miguel Plant

Revision 0

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Executive Summary

This Coal Combustion Residuals (CCR) Annual Inspection for the Ash Pile at the San Miguel Electric Plant (the San Miguel Plant) owned by the San Miguel Electric Cooperative, Inc. has been prepared in accordance with the requirements specified in the USEPA CCR Rule under 40 Code of Federal Regulations §257.84 (b). These regulations require that the specified documentation and assessments for an existing CCR landfill be prepared based on the timeframe of the initial annual inspection. That inspection was submitted on January 13, 2017; therefore, this annual inspection is due on January 13, 2018.

This Inspection for the Ash Pile meets the regulatory requirements as summarized in **Table ES-1**.

Table ES-1 –Summary

Report Section	CCR Rule Reference	Requirement Summary	Requirement Met?	Comments
2.1	§257.84 (b)(1)	*Annual Inspection*	Yes	The CCR Unit has met the annual inspection requirements
2.2	§257.84 (b)(2)	*Inspection Report*	Yes	The CCR Unit has met the inspection report requirements
2.3	§257.84 (b)(4)	*Frequency of Inspections*	Yes	The CCR Unit has met the required frequency of inspections
2.4	§257.84 (b)(5)	*Deficiency Identified*	Yes	Remedial actions and measures have been identified for all noted deficiencies

The San Miguel Ash Pile is considered an existing CCR landfill. All inspection requirements were evaluated, and the unit was found to meet all requirements as required within the individual assessment in §257.84 (b).

1 Introduction

1.1 Purpose of this Report

The purpose of the Annual Inspection presented in this report is to document that the requirements specified in 40 Code of Federal Regulations (CFR) §257.84 (b) have been met to support the requirement under each of the applicable regulatory provisions for the San Miguel Ash Pile. The San Miguel Ash Pile is an existing coal combustion residual (CCR) landfill as defined by 40 CFR §257.53. The CCR Rule requires that the inspection for an existing CCR landfill be prepared in a timeframe based on the previous inspection report date of January 13, 2017.

Table 1-1 summarizes the documentation required within the CCR Rule and the sections that specifically respond to those requirements of this assessment.

Table 1-1 – CCR Rule Cross Reference Table

Report Section	Title	CCR Rule Reference
2.1	Annual Inspection	§257.84 (b)(1)
2.2	Inspection Report	§257.84 (b)(2)
2.3	Frequency of Inspections	§257.84 (b)(4)
2.4	Deficiency Identified	§257.84 (b)(5)

1.2 Brief Description of Landfill

The San Miguel Plant is located in south central Atascosa County in Christine, Texas. The plant is surrounded by open grassy areas, a majority of which is used as pastureland for livestock.

The Plant has three CCR units which include two surface impoundments (the Ash Pond and Equalization Pond) and one landfill (the Ash Pile). This report will focus on the inspection of the Ash Pile. The Ash Pile is a temporary storage area of approximately 1.0 acre that is classified as an existing CCR landfill. Located northwest of the Plant, the Ash Pile is used to stage a stabilized mixture of fly ash and flue gas desulfurization (FGD) scrubber waste treatment sludge.

It is assumed that the Ash Pile sits on top of a layer of clayey soils acting as protection for the groundwater based on borings SP-1 through SP-3 done by Environmental Resources Management (ERM) in 2015. A concrete wall partially contains the Ash Pile on the east side and a steel wall contains the Ash Pile on the south side. **Figure 1** in **Appendix A** presents the San Miguel Plant Site Map.

2 Annual Inspection Description

Regulatory Citation: 40 CFR §257.84 Inspection requirements for CCR landfills

The Annual Inspection for the Ash Pile is described in this section. Information about operational and maintenance procedures was provided by San Miguel plant personnel. The San Miguel station follows an established maintenance program that quickly identifies and resolves issues of concern.

2.1 Annual Inspection

Regulatory Citation: 40 CFR §257.84 (b) Annual inspections by a qualified professional engineer;

- *(1) Existing and new CCR landfills and any lateral expansion of a CCR landfill must be inspected on a periodic basis by a qualified professional engineer to ensure that the design, construction, operation, and maintenance of the CCR unit is consistent with recognized and generally accepted good engineering standards.*

The Ash Pile is subject to the annual inspection requirement as mentioned. Thus, the following items were performed to comply with the CCR Rule.

2.1.1 Review of Available Information

Regulatory Citation: 40 CFR §257.84 (b)(1);

- *(i) A review of available information regarding the status and condition of the CCR unit, including, but not limited to, files available in the operating record (e.g., the results of inspections by a qualified person, and results of previous annual inspections).*

The available information was reviewed for the Ash Pile including the site assessment performed by CDM Smith for the United States Environmental Protection Agency (USEPA) on August 30, 2012, and the previous annual inspection performed by AECOM submitted on January 4, 2017.

San Miguel mining division collects the Ash Pile material in dump trucks on a daily basis and transports it to their coal mines located outside the plant. The Ash Pile material is purportedly used a backfill material in the mines per the definition of “CCR landfill” found in the CCR Rule. Due to the constant activity by the mining trucks, it is difficult for San Miguel to construct a permanent cover over the Ash Pile area.

It was brought to AECOM’ attention that Ash Pile area is periodically inspected (once a week, no records in place) to make sure that all waste management and dust control procedures are in place. San Miguel is also planning to adopt a new dust control procedure in 2018 which features additional sprinklers around the Ash Pile as well as test a new chemical reagent to minimize dust migration.

2.1.2 Visual Inspection

Regulatory Citation: 40 CFR §257.84 (b)(1);

- *(ii) A visual inspection of the CCR unit to identify signs of distress or malfunction of the CCR unit.*

The Ash Pile was visually inspected on December 26, 2017 by a registered professional engineer. As with the previous annual inspection, evidence of corrosion on the concrete wall and structural cracks were observed. Identified deficiencies are listed under section 2.4.2.

2.2 Content of the Inspection Report

Regulatory Citation: 40 CFR §257.84 (b)(2) Inspection report. The qualified professional engineer must prepare a report following each inspection that addresses the following:

- *(i) Any changes in geometry of the structure since the previous annual inspection.*

The geometry of the structure has not significantly changed since the previous annual inspection.

- *(ii) The approximate volume of CCR contained in the unit at the time of the inspection.*

Material from the Ash Pile is removed daily for off-site disposal, and thus, there is no long term storage in the Ash Pile. The approximate volume of CCR contained in the unit at the time of inspection is 1,200 Cubic Yards (CY) based on information provided by SMECI.

- *(iii) Any 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.*

The visual inspection performed on December 26, 2017 indicates minor potential structural weaknesses as discussed in section 2.4.2.

- *(iv) Any other change(s) which may have affected the stability or operation of the CCR unit since the previous annual inspection.*

There were no changes which might have affected the stability or operation of the structure since the previous annual inspection.

2.3 Frequency of Inspections

Regulatory Citation: 40 CFR §257.84 (b)(4);

- *The owner or operator of the CCR unit must conduct the inspection required by paragraphs (b)(1) and (2) of this section on an annual basis. The date of completing the initial inspection report is the basis for establishing the deadline to complete the first subsequent inspection. Any required inspection may be conducted prior to the required deadline provided the owner or operator places the completed inspection report into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing subsequent inspection reports is based on the date of completing the previous inspection report. For purposes of this section, the owner or operator has completed an inspection when the inspection report has been placed in the facility's operating record as required by §257.105(g)(9).*

The annual inspection report was submitted to SMECI on January 10, 2018.

2.4 Deficiency Identified

Regulatory Citation: 40 CFR §257.84 (b)(5);

- *If a deficiency or release is identified during an inspection, the owner or operator must remedy the deficiency or release as soon as feasible and prepare documentation detailing the corrective measures taken.*

Areas of concern from previous site assessment were reviewed and described below in section 2.4.1. Areas of concern from this year's inspection are described in section 2.4.2.

2.4.1 Previous Inspection

Five (5) areas of concern were noted during the initial annual inspection performed on January 4, 2017 as shown in **Table 2-1** below.

Table 2-1 – Areas of Concern (Inspected: January 4, 2017)

Deficiency/Observation	Corrective Measure Used
Concrete retaining wall has large crack, signs of corrosion, and exposed rebar.	This concrete wall is a separation device that provides runon and runoff protection to the CCR unit. A minimal amount of CCR material may come into contact with this wall for containment purposes. This minimal depth of CCR material that periodically abuts the wall produces very little need for structural support. The crack in the concrete retaining wall will be filled in order to protect the reinforcement from exposure to the elements. The stability of the wall will be monitored on a regular basis.
Steel Reinforcement on the concrete retaining wall appears to be corroded which could eventually pose a structural concern for the wall.	The crack in the concrete retaining wall will be filled in order to protect the reinforcement from exposure to the elements. The structural integrity of the wall will be evaluated and repaired as necessary. The condition of the steel will be evaluated and repairs will be performed as necessary.
Concrete retaining wall present only on east side and a steel retaining wall/ Baffle wall is used on the south side to contain the Sludge/Ash Pile.	Based on our observation, steel structures have a tendency to corrode when in contact with the CCR material. We recommend SMECI to evaluate the structure on a regular basis. The steel wall will be inspected for corrosion.
Erosion gullies observed along the drainage channel.	Protect the drainage channel for erosion control.
Sludge pile is exposed resulting in minor erosion. Stormwater runoff not draining properly. Storm water runoff ditches are present on west/north side. Run on drainage behind the concrete wall has no contact with the sludge waste.	Grade the area on the West and North side at a 2% slope such that all storm water or surface runoff is directed towards the drainage ditches and through the normal stormwater discharge system.

2.4.2 Current Inspection

Eight (8) areas of concern were noted during the annual inspection performed on December 26, 2017. Corrective measures have been proposed to meet the requirements of §257.84 (b)(5) for each deficiency or observation identified as shown in **Table 2-2** below. **Figure 1** shows the location of the listed deficiencies observed during the most recent annual inspection conducted on December 26, 2017.

Table 3-2 – Areas of Concern (Inspected: December 26, 2017)

Deficiency/Observation	Proposed Corrective Measure
Concrete retaining wall has large crack, signs of corrosion, and exposed rebar.	AECOM understands that the concrete wall is a separation device that provides run-on and runoff protection to the CCR unit. Also, a minimal amount of CCR material may come into contact with this wall for containment purposes. This minimal depth of CCR material that periodically abuts the wall produces very little need for structural support. AECOM recommends to fill the cracks in the concrete retaining wall to be filled in order to protect the reinforcement from exposure to the CCR elements. The stability of the wall shall be monitored on a regular basis.
Wind/Storm Events have the potential to migrate Ash pile material.	AECOM recommends installing additional sprinklers and building a retaining wall on the West side of the Ash Pile unit. This will help minimize CCR material migration and help provide necessary dust control. Care should be taken to keep Ash Pile height below existing wall heights to prevent ash migration.
Steel Reinforcement on the concrete retaining wall appears to be corroded which could eventually pose a structural concern for the wall.	AECOM recommends SMECI to fill the cracks in the concrete retaining wall in order to protect the reinforcement from exposure to the elements. The structural integrity of the wall shall be evaluated and repaired as necessary. The condition of the steel shall be evaluated and repairs will be performed as necessary.
Concrete retaining wall present only on east side and a steel retaining wall/ Baffle wall is used on the south side to contain the Sludge/Ash Pile.	Based on our observation, steel structures have a tendency to corrode when in contact with the CCR material. AECOM recommends SMECI to monitor the structure on a regular basis and perform the suggested repairs at the appropriate time. The steel wall will be inspected for corrosion.
Ash pile is exposed resulting in minor erosion. Storm water runoff ditches are present on west/north side which flow towards the Lignite Retention Pond or Ash Pond. This water is recycled for plant use.	Grade the area on the West and North side at a 1% - 2% slope such that all storm water or surface runoff is directed towards the drainage ditches and does not cause any ponding issues around the Ash pile.

Table 3-2 – Areas of Concern (Inspected: December 26, 2017)	
Deficiency/Observation	Proposed Corrective Measure
Run on drainage behind the concrete wall has no contact with the ash pile.	
Erosion gullies observed along the drainage channel.	Protect the drainage channel for erosion control. Use geotextile/fabric to line the drainage channel.
Rutting along haul roads.	Maintain the haul roads as necessary to prevent storm water ponding issues.
Stormwater structures need repair.	Repair the stormwater drain pipes, diversion ditches and provide riprap for erosion protection as necessary.

3 Limitations

Background information, design basis, and other data which AECOM has used in preparation of this report have been furnished to AECOM by SMECI. AECOM has relied on this information as furnished, and is not responsible for the accuracy of this information. Our recommendations are based on available information from previous and current inspections. These recommendations may be updated as future inspections are performed.

The conclusions presented in this report are intended only for the purpose, site location, and project indicated. The recommendations presented in this report should not be used for other projects or purposes. Conclusions or recommendations made from these data by others are their responsibility. The conclusions and recommendations are based on AECOM's understanding of current plant operations, maintenance, stormwater handling, and ash handling procedures at the station, as provided by SMECI. Changes in any of these operations or procedures may invalidate the findings in this report until AECOM has had the opportunity to review the findings, and revise the report if necessary.

This development of the Annual Inspection was performed in accordance with the standard of care commonly used as state-of-practice in our profession. Specifically, our services have been performed in accordance with accepted principles and practices of the engineering profession. The conclusions presented in this report are professional opinions based on the indicated project criteria and data available at the time this report was prepared. Our services were provided in a manner consistent with the level of care and skill ordinarily exercised by other professional consultants under similar circumstances. No other representation is intended.

Appendix A
Figures

Figure 1 – Site Map

0 200 400 600
SCALE IN FEET

AECOM
1001 Highlands Plaza
Drive West, Suite 300
St. Louis, Mo. 63110-1337
314 429-0100 (phone)
314 429-0462 (fax)

SAN MIGUEL ELECTRIC COOPERATIVE, INC.
6200 FM 3387
Christine, TX 78012

SAN MIGUEL PLANT
CHRISTINE, TEXAS

ANNUAL CCR INSPECTION

PRELIMINARY NOT FOR CONSTRUCTION

ISSUED FOR BIDDING ____ DATE

ISSUED FOR CONSTRUCTION ____ DATE

REVISIONS

NO.	DESCRIPTION	DATE
△		
△		
△		
△		
△		

AECOM PROJECT NO:	60530067
DRAWN BY:	TYL
DESIGNED BY:	TYL
CHECKED BY:	MJC
DATE CREATED:	01/09/2017
PLOT DATE:	1/5/2018
SCALE:	1" = 200'
ACAD VER:	2017

SHEET TITLE

ASH PILE SITE MAP

FIGURE 1
SHEET 1 OF 1

9400 Amberglen Boulevard
Austin, Texas 78729
1-512-454-4797

About AECOM

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