

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

May 2, 2014

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

VIA E-MAIL

Mr. Michael Kezar  
General Manager  
San Miguel Electric Cooperative  
P.O. Box 280  
Jourdanton, Texas 78026-0280

Re: Request for Action Plan regarding San Miguel Electric Cooperative Inc.'s San Miguel Electric Plant

Dear Mr. Kezar,

On August 30, 2012 the United States Environmental Protection Agency ("EPA") and its engineering contractors conducted a coal combustion residual (CCR) site assessment at the San Miguel Electric Cooperative Inc.'s San Miguel Electric Plant facility. The purpose of this visit was to assess the structural stability of the impoundments or other similar management units that contain "wet" handled CCRs. We thank you and your staff for your cooperation during the site visit. Subsequent to the site visit, EPA sent you a copy of the draft report evaluating the structural stability of the units at the San Miguel Electric Cooperative Inc.'s San Miguel Electric Plant facility and requested that you submit comments on the factual accuracy of the draft report to EPA. Your comments were considered in the preparation of the final report.

The final report for the San Miguel Electric Cooperative Inc.'s San Miguel Electric Plant facility is attached.

This report includes a specific condition rating for the CCR management units and recommendations and actions that our engineering contractors believe should be undertaken to ensure the stability of the CCR impoundments located at the San Miguel Electric Cooperative Inc.'s San Miguel Electric Plant facility. These recommendations are listed in Enclosure 1.

Since these recommendations relate to actions which could affect the structural stability of the CCR management units and, therefore, protection of human health and the environment, EPA believes their implementation should receive the highest priority. Therefore, we request that you inform us on how you intend to address each of the recommendations found in the final report. Your response should include specific plans and schedules for implementing each of the recommendations. If you will not implement a recommendation, please provide a rationale. Please provide a response to this request by **June 4, 2014**. Please send your response to:

Mr. Stephen Hoffman  
U.S. Environmental Protection Agency (5304P)

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1200 Pennsylvania Avenue, NW  
Washington, DC 20460

**If you are using overnight or hand delivery mail, please use the following address:**

Mr. Stephen Hoffman  
U.S. Environmental Protection Agency  
Two Potomac Yard  
2733 S. Crystal Drive  
5<sup>th</sup> Floor, N-5838  
Arlington, VA 22202-2733

You may also provide a response by e-mail to [hoffman.stephen@epa.gov](mailto:hoffman.stephen@epa.gov), [dufficy.craig@epa.gov](mailto:dufficy.craig@epa.gov), [kelly.patrickm@epa.gov](mailto:kelly.patrickm@epa.gov) and [englander.jana@epa.gov](mailto:englander.jana@epa.gov).

You may assert a business confidentiality claim covering all or part of the information requested, in the manner described by 40 C. F. R. Part 2, Subpart B. Information covered by such a claim will be disclosed by EPA only to the extent and only by means of the procedures set forth in 40 C.F.R. Part 2, Subpart B. If no such claim accompanies the information when EPA receives it, the information may be made available to the public by EPA without further notice to you. If you wish EPA to treat any of your response as “confidential” you must so advise EPA when you submit your response.

EPA will be closely monitoring your progress in implementing the recommendations from this report and could decide to take additional action if the circumstances warrant.

You should be aware that EPA will be posting the report for this facility on the Agency website shortly.

Given that the site visit related solely to structural stability of the management units, this report and its conclusions in no way relate to compliance with RCRA, CWA, or any other environmental law and are not intended to convey any position related to statutory or regulatory compliance.

Please be advised that providing false, fictitious, or fraudulent statements of representation may subject you to criminal penalties under 18 U.S.C. § 1001.

If you have any questions concerning this matter, please contact Mr. Hoffman in the Office of Resource Conservation and Recovery at (703) 308-8413. Thank you for your continued efforts to ensure protection of human health and the environment.

Sincerely,  
/Barnes Johnson /, Director  
Office of Resource Conservation and Recovery

Enclosures

**San Miguel Electric Cooperative Inc.'s San Miguel Electric Plant Recommendations  
(from the final assessment report)**

**CONCLUSIONS**

**Conclusions Regarding Structural Soundness of the CCW Impoundments**

Structural stability documentation appears to be adequate. A geotechnical report, prepared by Arias & Associates, Inc. (Arias), was provided, and it included slope stability analyses for all required load conditions, with the exception of rapid drawdown and liquefaction. Because the impoundments do not include spillways or overflow structures, and liquids are pumped over the embankments, rapid drawdown conditions were considered only likely in the event of a breach. The potential for liquefaction is considered unlikely due to the subsurface soil conditions and low seismic hazard level.

Slope stability analyses were provided for steady-state seepage, maximum surcharge pool, and seismic conditions, as well as the assessment for liquefaction potential. In general, slope stability safety factors for load conditions analyzed are satisfactory.

**Conclusions Regarding the Hydrologic/Hydraulic Safety of CCW Impoundments**

No hydrologic and hydraulic information was provided by San Miguel to indicate CCW impoundments hydrologic/hydraulic safety. A target pool elevation of at least 18 inches of freeboard at both the Ash Pond and Sludge Basin was the only hydraulic information provided by San Miguel. During the site visit, both ponds were below the target pool elevation. Because no hydrologic/ hydraulic documentation was provided, the hydrologic/hydraulic safety is judged to be inadequate.

**Conclusions Regarding Adequacy of Supporting Technical Documentation**

Supporting data and documentation for the Ash Pond and Sludge Basin includes required structural stability analyses for normal operating pool, steady state conditions; maximum surcharge pool condition; and normal operating pool under seismic loading conditions. An assessment of liquefaction potential was also provided, with the conclusion that liquefaction is considered to be very unlikely based on existing subsurface soil conditions and the stated 6% chance of a seismic event of a magnitude 5.0 or greater occurring over a 250-year period. Technical documentation of the embankment stability under a sudden drawdown loading condition was not provided because rapid drawdown conditions were considered only likely in the event of a breach. CDM Smith agrees with the rationale provided regarding embankment stability, liquefaction potential, and rapid drawdown conditions. Supporting documentation for structural stability is considered to be adequate.

Because no supporting data or documentation was provided for hydrologic/hydraulic safety of the impoundments, it is considered to be inadequate.

**Conclusions Regarding Description of the CCW Impoundments**

The record drawings and descriptions of the CCW impoundments provided by San Miguel representatives appear to be consistent with the visual observations by CDM Smith during site assessment.

**Conclusions Regarding Field Observations**

During visual observations and site assessments, CDM Smith observed an area of potential seepage near the toe of the Ash Pond's west embankment, erosion rills on the interior and exterior slopes of the Ash Pond embankments and several rodent burrows on the crest and exterior slope of the Ash Pond embankments. An area of erosion, approximately 5 feet wide, was also observed on the interior slope of the Ash Pond's east embankment. According to San Miguel representatives this erosion was a result of leakage from a water well pipe traversing the Ash Pond embankment. The water well pipe had been repaired at the time of the site assessment. Soils had eroded or settled from under the Sludge Basin's stormwater inlet structure. Other observations of the Sludge Basin embankments included erosion rills on west embankment interior slope and an area of erosion on the interior slope of the west embankment, near the submersible pump outlet structure.

### **Conclusions Regarding Adequacy of Maintenance and Methods of Operation**

Current maintenance and operation procedures appear to be generally adequate.

There was documentation regarding seepage at the Ash Pond in the 1980s. The pond liner was reconstructed in 1987, but an area of potential seepage was observed during the CDM Smith site assessment in the vicinity of one of the areas that had documented seepage in the 1980s. There was no evidence of previous spills or release of impounded liquids outside the plant property.

### **Conclusions Regarding Adequacy of Surveillance and Monitoring Program**

Surveillance and monitoring procedures include weekly checks of the impoundments by the Plant Environmental Engineer for leaks or deficiencies, and recording pool levels for both the Ash Pond and Sludge Basin. Additionally, level gages are checked six times daily by the operations department.

Instrumentation for the Ash Pond and Sludge Basin consists of local level gages, used by operations to record impoundment levels. In addition to the current surveillance and monitoring program, the area of potential seepage at the west embankment exterior slope of the Ash Pond should be monitored.

Because of the erosion into the Ash Pond's east embankment slope from a leaking pipe, the surveillance and monitoring program should be revised to include more-detailed inspections.

### **Conclusions Regarding Suitability for Continued Safe and Reliable Operation**

Main embankments do not show evidence of unsafe conditions requiring immediate remedial efforts, although maintenance to correct deficiencies noted above is required.

As described by San Miguel representatives operating procedures for the Ash Pond and Sludge Basin include methods of controlling the water levels in the lagoons, but no formal documentation was provided to CDM Smith.

## **RECOMMENDATIONS**

### **Recommendations Regarding the Hydrologic/Hydraulic Safety**

It is recommended that a qualified professional engineer determine the required flood frequency and evaluate the hydrologic and hydraulic capacity of the CCW impoundments to withstand design storm events without overtopping.

### **Recommendations Regarding the Technical Documentation for Structural Stability**

It is recommended that a qualified professional engineer reevaluate the impoundments for structural stability should conditions from those included in the Arias & Associates, Inc. structural stability analyses change.

### **Recommendations Regarding Field Observations**

CDM Smith recommends corrective actions be taken for the specific conditions identified below:

- Erosion rills – Erosion rills were observed on the interior slopes of the Sludge Basin and the interior and exterior slopes of the Ash Pond. Structural fill should be placed and compacted in the rills and graded to adjacent existing contours. The area should be sodded or reseeded.
- Surface erosion - Structural fill should be placed and compacted, graded to adjacent existing contours, and sodded or reseeded. Alternatively, riprap or other armoring could be used. Riprap or other armoring is recommended for the west, north, and east interior slopes to reduce the potential for erosion.
- Rodent burrows - Rodent burrows were observed on the crest and exterior embankment of the Ash Pond. Although not seen on other embankments, vegetation cover may have hidden additional rodent burrows. CDM Smith recommends San Miguel accurately document areas disturbed by animal activity, remove the animals, and backfill the burrows with compacted structural fill to protect the integrity of the embankments.

- Potential seepage area - CDM Smith observed an area of potential seepage at the west embankment exterior slope of the Ash Pond. CDM Smith recommends San Miguel take the following actions:
  - Cut back and maintain vegetation in the area to facilitate monitoring the condition
  - Develop a regular surveillance program to monitor areas of seepage and potential seepage to measure the rate, volume, and turbidity of flow emerging from the embankment slope; and
  - Develop and execute a geotechnical exploration program that includes additional test borings and installation of piezometers and other instrumentation to analyze and regularly monitor embankment seepage and stability.

#### **Recommendations Regarding Surveillance and Monitoring Program**

Monitoring for potential seepage at the exterior embankment slopes is recommended for both the Ash Pond and Sludge Basin considering historical issues with seepage. Potential areas of seepage may be more readily assessed after clearing of trees and dense vegetation on embankment slopes. It is recommended that vegetation on the impoundment embankments be maintained with seasonal mowing, as necessary, for animal control and surveillance and monitoring of embankments.

#### **Recommendations Regarding Continued Safe and Reliable Operation**

Inspections should be made following periods of heavy and/or prolonged rainfall, and the occurrence of these events should be documented. Inspection procedures should be documented and inspection records should be retained at the facility for a minimum of three years.

Major repairs and slope restoration should be designed by a registered professional engineer experienced with earthen dam design.

None of the conditions observed require immediate attention or remediation, however, the above recommendations should be implemented to maintain continued safe and reliable operation of the CCW impoundments.