

US EPA ARCHIVE DOCUMENT



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

June 17, 2014

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

VIA E-MAIL

Mr. Frederick James, Senior Vice President  
Energy Delivery Services  
CPS Energy  
P.O.Box 1771  
San Antonio, Texas 78296

Re: Request for Action Plan regarding CPS Energy – J.K. Spruce Power Plant

Dear Mr. James,

On August 27 and 28, 2012 the United States Environmental Protection Agency ("EPA") and its engineering contractors conducted a coal combustion residual (CCR) site assessment at the CPS Energy – J.K. Spruce Power 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 CPS Energy – J.K. Spruce Power 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 CPS Energy – J.K. Spruce Power 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 CPS Energy – J.K. Spruce Power 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 **July 17, 2014**. Please send your response to:

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

**Enclosure 1**  
**CPS Energy – J.K. Spruce Power Plant Recommendations (from the final assessment report)**

**CONCLUSIONS**

Conclusions are based on visual observations during site assessments on August 27 and 28, 2012 and review of technical documentation provided by CPS.

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

A May 7, 2014 geotechnical report, prepared by Raba Kistner Consultants, Inc. (RKCI), was provided that included slope stability analyses for steady-state and seismic loading conditions of the SRH Pond and Evaporation Pond embankments. The RKCI 2014 report supersedes RKCI's November 12, 2012 report referenced in the CDM Smith's December 2012 "*Assessment of Dam Safety of Coal Combustion Surface Impoundments, CPS Energy, J.K. Spruce Power Plant*". The RKCI report is included in **Appendix A of the final report**. The calculated factors of safety presented in the RKCI 2014 report, for the loading conditions analyzed, met minimum required factors of safety outlined by the USACE in EM 1110-2-1902, Table 3-1 and seismic factors of safety by FEMA Federal Guidelines for Dam Safety, Earthquake Analyses and Design of Dams. The RKCI 2014 report did not present analyses for liquefaction potential, end-of construction, and rapid drawdown loading conditions. RKCI stated in the 2014 report that the end-of construction condition was not evaluated due to the age of the ash ponds. RKCI also stated that both rapid drawdown and erosion failures are considered to be of very low risk due to the embankment toe elevations (above EL 490 feet) with respect to the target pool elevation (EL 485 feet) and because they would pose no risk of environmental contamination, because the pond must empty for this condition to occur.

RKCI indicated in their May 2014 report that the soils beneath the existing berms have a very low risk of experiencing liquefaction due to earthquake. In their seismic slope stability analyses, RKCI used the mapped spectral response acceleration of 0.098g from the USGS web site calculator. RKCI further indicated in their 2014 report that the applied horizontal seismic load had a 4-to-6 % probability of exceedance in 50 years. USEPA guidelines specify that the mapped spectral response acceleration for an earthquake with 2% probability of exceedance in 50 years be used in seismic slope stability analyses. CDM Smith used USGS referenced maps, published in the 2010 ASCE-7 Standard, to determine the mapped spectral response acceleration for an earthquake with 2% probability of exceedance in 50 years. CDM Smith found the spectral response acceleration for the Spruce site to be 0.075g. Accordingly, in CDM Smith's opinion, the spectral response acceleration employed in RKCI's seismic analyses conforms to USEPA standards.

No apparent structural damage or evidence of previous repairs was observed in the CCW impoundments during CDM Smith's site visit. From visual observations, the embankments appeared structurally sound; however high water and solids level in Evaporation Pond prevented observation of the interior embankment slopes during CDM Smith's visual observations and site assessments.

CDM Smith agrees with RKCI's rationale regarding embankment stability for end-of-construction, liquefaction potential, and rapid drawdown conditions.

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

Hydrologic/hydraulic (H & H) documentation provided by CPS included precipitation amounts for selected storm durations and return periods expected in the Calaveras Lake site area. A preliminary H & H evaluation performed by CDM Smith suggests there is enough storage capacity at current operating pool levels for the SRH Pond and the Evaporation Pond to safely store precipitation from the FEMA recommended rainfall events (0.1-percent annual chance exceedance flood for the significant hazard potential SRH Pond and 1--percent annual chance exceedance flood for the low hazard potential Evaporation Pond). Based on CDM Smith's preliminary evaluation, the hydrologic/hydraulic safety of the impoundments appears to be adequate.

### **Conclusions Regarding Adequacy of Supporting Technical Documentation**

CDM Smith has the following conclusions based on our review of the documentation provided by CPS:

- ☐ The RKCI documentation of the stability analyses for the SRH Pond and Evaporation Pond is considered adequate based on the following:
  - ☐ Steady-state and seismic stability analyses for of the SRH Pond and Evaporation Pond embankments are documented.
  - ☐ RKCI provided assessments of the embankments' liquefaction potential, and structural stability applicable for end of construction and sudden drawdown loading conditions. RKCI did not analyze liquefaction potential, end of construction and sudden drawdown loading conditions. As described above, CDM Smith agrees with RKCI's rationale for not performing analyses for these loading conditions.
- ☐ The hydrologic and hydraulic supporting documentation of SRH Pond and Evaporation Pond is considered inadequate based on the following:
  - ☐ H & H documentation provided by CPS included precipitation amounts for selected storm durations and return periods expected in the Calaveras Lake site area. No documentation was provided by CPS on the ability of the impoundments to store the FEMA-recommended design floods.
  - ☐ An evaluation to determine the required IDF and of the capacity of the SRH Pond and Evaporation Pond to withstand the design hydrologic/hydraulic events, without overtopping has not been provided.

### **Conclusions Regarding Description of the CCW impoundments**

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

### **Conclusions Regarding Field Observations**

The exterior slopes of the Evaporation Pond are covered in grassy vegetation approximately 2 feet high and a few small trees and bushes with diameters less than 6 inches. Areas of loose soil were observed at the east embankment exterior slope of the Evaporation Pond and an animal burrow was observed at the west embankment exterior slope. Trees up to 12 inches in diameter were located at the toe of all embankments of the Evaporation Pond. Visible portions of interior slopes of the Evaporation Pond and SRH Pond did not include riprap or other armoring.

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

Current maintenance and operation procedures appear to be generally adequate, though they are not documented. There was no existing evidence of previous spills or release of impounded liquids outside the plant property.

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

No surveillance and monitoring procedures exist for the SRH Pond and Evaporation Pond. Instrumentation is not present for the SRH Pond or Evaporation Pond.

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

Main embankments do not show evidence of unsafe conditions requiring immediate remedial efforts.

CPS' operating procedures for the SRH Pond include methods of controlling the water levels in the north and south sections of the SRH Pond, but no formal documentation was provided to CDM Smith.

There were no documented operating procedures for the Evaporation Pond.

### **RECOMMENDATIONS**

Based on CDM Smith's visual assessment of SRH Pond and Evaporation Pond and review of documentation provided by CPS, CDM Smith offers the following recommendations for consideration.

**Recommendations Regarding the Hydrologic/Hydraulic Safety**

It is recommended that a qualified professional engineer determine the required Inflow Design Flood (IDF) and evaluate the hydrologic and hydraulic capacity of the SRH Pond and Evaporation Pond to withstand design hydrologic/hydraulic events, without overtopping, as recommended by FEMA.

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

None

**Recommendations Regarding Field Observations**

None; no significant deficiencies were observed at the SRH Pond and Evaporation Pond.

**Recommendations Regarding Adequacy of Maintenance and Methods of Operation**

CDM Smith recommends that vegetation on the SRH Pond and Evaporation Pond embankments be cut on a regular basis to help ensure that adequate visual observations can be made by CPS' personnel during routine inspections. CDM Smith also recommends trees (including the root ball) located at and within 15 feet of the toe of all embankments of the Evaporation Pond be removed and the excavations filled with compacted fill under the supervision of a qualified dam engineer. Animal control measures should be implemented to reduce embankment disturbance. All affected areas should be backfilled with compacted fill, graded to match the surrounding topography, and seeded with appropriate noninvasive grassy vegetation. It is also recommended that riprap be placed on interior embankment slopes in areas with little or no armoring.

**Recommendations Regarding Surveillance and Monitoring Program**

CPS Energy is required by Texas Commission on Environmental Quality (TCEQ) under National Pollutant Discharge Elimination System (NPDES) Permit No. WQ0001514000 to monitor discharge of wastewater into Calaveras Lake. Surveillance procedures should be in accordance with the TCEQ – NPDES Permit. According to CPS, no surveillance procedures exist for the SRH Pond and Evaporation Pond.

It is recommended that CPS prepare formal surveillance and monitoring procedures for the SRH and Evaporation Pond.

**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.

The above recommendations should be implemented to help maintain continued safe and reliable operation of the CCW impoundments.