

US EPA ARCHIVE DOCUMENT



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

April 30, 2014

OFFICE OF  
SOLID WASTE AND  
EMERGENCY RESPONSE

VIA E-MAIL

Mr. Michael Horvath  
First Energy Generation Corporation  
P.O. Box 1281  
Shippingport, Pa 15077-0128

Re: Request for Action Plan regarding First Energy Corp - Albright Power Station

Dear Mr. Horvath

On September 18, 2012 the United States Environmental Protection Agency ("EPA") and its engineering contractors conducted a coal combustion residual (CCR) site assessment at the First Energy Corp - Albright Power Station 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 First Energy Corp - Albright Power Station 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 First Energy Corp - Albright Power Station 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 First Energy Corp - Albright Power Station 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 2, 2014**. Please send your response to:

Mr. Stephen Hoffman  
U.S. Environmental Protection Agency (5304P)  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

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**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

**First Energy Corp - Albright Power Station Recommendations (from the final assessment report)**

**CONCLUSIONS**

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

Areas of erosion near the inlet pipes at the South Lagoon may cause localized structural stability issues in the future, but there was no instability of the embankment based on the observations by CDM Smith during the site assessment. Lateral movement of a retaining wall near the southwest corner of the North Lagoon does not appear to be adversely impacting the structural integrity of the North Lagoon. The walls were installed to provide excavating equipment access to the entire perimeter of the impoundment and do not appear to be required for operation of the impoundment.

Very limited and preliminary static slope stability analysis information was provided to assess the structural stability and soundness of the embankments of the North and South Lagoons.

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

Hydrologic and hydraulic information provided by the FirstEnergy Corp representative indicate CCW impoundments have adequate capacity to withstand a 25-year, 24-hour storm event without overtopping at normal pool level. It should be noted that the water level in the North Lagoon was approximately 3.5 feet above normal pool elevation during the site assessment. Normal pool elevation is based on the weir elevation at the outlet structure. The water level in the North Lagoon was elevated because the South Lagoon was being dredged at the time of the site visit.

However, the only documentation regarding the hydraulic capacity of the impoundments was in the form of an e-mail from the FirstEnergy Corp representative. No probable maximum precipitation (PMP) analysis was provided, as required under Federal Emergency Management Agency (FEMA) standards.

**Conclusions Regarding Adequacy of Supporting Technical Documentation**

Supporting data and documentation for the North and South Lagoons have not been provided. Slope stability analyses and liquefaction potential analyses for embankment foundations have not been performed.

**Conclusions Regarding Description of the CCW Impoundments**

The record drawings and descriptions of the CCW impoundments provided by FirstEnergy Corp representatives appear to be consistent with the visual observations by CDM Smith during the site assessment, with the exception of the retaining wall located at the North Lagoon's west embankment.

The 2008 modifications to the North and South Lagoon weir structures and modifications to the outfall piping at the North Lagoon were not included on the provided record drawings.

**Conclusions Regarding Field Observations**

During visual observations and site assessments, CDM Smith observed lateral movement of the existing retaining wall at the interior slope of the North Lagoon's west embankment, and areas of erosion near the inlet pipes at the interior north and west embankment slopes of the South Lagoon.

Dense vegetation was observed on the northeast embankment, exterior slope of the North Lagoon, adjacent to the Cheat River.

The growth of woody vegetation on and near dams, including the exterior toe area, can lead to serious problems. Sudden uprooting of trees by strong winds can result in the movement of a relatively large amount of embankment material and create large voids in the embankment. The uprooting in turn can lower the crest of the dam, reduce the effective width of the dam, lead to instability of the embankment, and facilitate seepage. The root systems of trees can be a potential hazard by allowing seepage pathways to develop through a dam. Trees eventually die and their roots decay and rot. The root cavity leaves a void within the dam through which water can enter and flow. The seepage paths can ultimately lead to failure of the dam by piping (internal

erosion). In general, a tree's root system may extend to the edge of the tree canopy or tree drip line.

Brush and woody vegetation and tall grass prevent the proper visual inspection of the dam surfaces.

The observation of sinkholes, slides, animal burrows, seeps, and other irregularities can be obscured by the vegetation. Woody vegetation can also cause excessive shade which in turn can hinder the growth of sturdy, dense grass coverage. These affected areas are more prone to surface erosion.

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

Current maintenance and operation procedures appear to be inadequate. The inspections performed twice a month have no formal procedure and are not documented. At the time of CDM Smith's site assessment there was approximately 0.5 feet of freeboard in the North Lagoon because the South Lagoon was being dredged. The water surface was at approximately El. 1213.5.

A telephone memo prepared by GAI Consultants, Inc. (GAI), dated November 8, 1976, documenting a telephone call between Ralph Curtiss of GAI and M.P. Fedorov of Sanderson & Porter, Inc (S&P) states the calculated factor of safety of the North Lagoon embankments under cleaning equipment surcharge; with a rock berm at the toe of the interior embankment; and a maximum water level of El. 1211 (3 feet of freeboard) is 1.46.

There was no existing evidence of previous seepage, spills, or release of impounded liquids outside the plant property.

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

The surveillance, recording, and monitoring program for the West Virginia Department of Environmental Protection (WVDEP) under the National Pollutant Discharge Elimination System (NPDES) Permit appears to be adequate and comply with WVDEP requirements.

#### **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.

FirstEnergy Corp's Emergency Action Plans (EAPs) for the North and South Lagoons includes methods of controlling the water levels in the lagoons, but no formal documentation was provided to CDM Smith.

### **RECOMMENDATIONS**

Based on CDM Smith's visual assessment of North and South Lagoons and review of documentation provided by FirstEnergy Corp, 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 flood frequency and evaluate the hydrologic and hydraulic capacity of the lagoons to withstand design storm events without overtopping.

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

It is recommended that a qualified professional engineer evaluate the static and seismic stability on representative embankment cross sections and perform liquefaction analyses for both the North and South Lagoons to enable a potential fair or satisfactory rating for structural stability.

#### **Recommendations Regarding Field Observations**

CDM Smith observed lateral movement of the retaining wall at the interior slope of the North Lagoon's south embankment. Lateral movement was not measured, but it appeared that the wall has moved several inches out of plumb. In CDM Smith's opinion, additional movement and/or collapse of the wall will not adversely impact the structural integrity of the North Lagoon, however First Energy Corp may find it advantageous to have a qualified professional engineer evaluate the stability of the wall and provide recommendations for remediation as appropriate. It

is further suggested that FirstEnergy Corp may want to monitor wall movement prior to completion of the stability analyses.

Areas of erosion were observed on the interior slopes of the north and west embankments of the South Lagoon near inlet pipes. To restore areas of erosion, it is recommended to place riprap to adjacent existing grade contours or place and compact structural fill, grade to adjacent existing contours, and apply grass seed.

Trees and dense vegetation observed on the northeast embankment, exterior slope of the North Lagoon, adjacent to the Cheat River, should be removed and the embankment slope restored to the original contours by placing structural fill and compacting, as recommended by a qualified professional engineer. After slope restoration, it is recommended to stabilize the exposed surface of the embankment with sod, hydro seeding, or riprap consisting of a heterogeneous mixture of irregular-shaped rocks placed over the compacted fill and a geotextile fabric. Regular maintenance activities should be performed at least twice a year or as conditions warrant from the spring to fall to control and limit growth of vegetation on the embankments.

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

Monitoring for potential seepage at the exterior embankment slopes is recommended for both the North and South Lagoons. Potential areas of seepage may be more readily assessed after clearing of trees and dense vegetation.

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

Inspections should be made following periods of heavy and/or prolonged rainfall and/or high water events on the Cheat River, 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.