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

SEP 15 2009

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

VIA E-MAIL AND FEDERAL EXPRESS

Mr. Ed M. Sullivan, Consulting Engineer
Duke Energy Corporation
526 South Church Street
Charlotte, North Carolina 28202

Dear Mr. Sullivan,

On June 4-5, 2009 the United States Environmental Protection Agency ("EPA") and its engineering contractors conducted a site assessment of the Primary and Secondary Ash Ponds at the Riverbend facility. The purpose of this visit was to assess the structural stability of the impoundments or other similar management units that contain "wet" handled coal combustion residuals (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 Riverbend 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 Riverbend facility is enclosed. This report includes a specific rating for each CCR management unit and recommendations and actions that our engineering contractors believe should be undertaken to ensure the stability of the CCR impoundment(s) located at the Riverbend facility. These recommendations are found on pages 67-70 in the final assessment report and are listed in Enclosure 2.

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 explain why. Please provide a response to this request within 14 calendar days of receipt of this letter. Please send your response to:

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

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

Mr. Stephen Hoffman
US Environmental Protection Agency
Two Potomac Yard
2733 S. Crystal Drive
5th Floor, N-237
Arlington, VA 22202-2733

You may also provide a response by e-mail to hoffman.stephen@epa.gov

This request has been approved by the Office of Management and Budget under EPA ICR Number 2350.01.

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 these reports and could decide to take additional action if the circumstances warrant.

You should be aware that EPA will be posting the non-CBI portions of 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.

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 ongoing efforts to ensure protection of human health and the environment.

Sincerely,

Matt Hale, Director
Office of Resource Conservation and Recovery

Enclosures

4.2 Maintaining Vegetation Growth

Appropriate grass vegetated the dikes. However, there were areas of sparse vegetation where reseeding maintenance should be performed. There are also some areas where the grass cover appeared to be removed by sliding mower wheels. Duke Energy should perform reseeding as required yearly to maintain a good grass cover on the dikes. If mower damage routinely occurs in the same areas each time grass is re-established, consideration should be given to using alternative methods (such as weed-whacking) of cutting the grass in these areas.

4.3 Drainage Swale Maintenance

Sediment was evident in rip rap drainage swales. The sediment observed appeared to be related to surface runoff and tended to be accumulated at the toe of the swales. Duke Energy should monitor the condition of these drainage swales and if the sediment appears to be clogging the rip rap and impeding surface runoff from being adequately conveyed away from the earthen embankments, the rip rap should be cleaned of sediment.

4.4 Tree and Root Removal

Tree roots were observed at the slope surface near the northwest end of the secondary dike. These tree roots appear to be from trees growing beyond the toe of the dam. CHA recommends that Duke Energy, under the direction of a professional engineer, remove trees from beyond the toe of the dam, and remove large root masses in the embankment toe.

Similarly, trees have established themselves in ash sediment adjacent to or over the toe of the intermediate dike at the west end. CHA recommends these trees be removed under the direction of a professional engineer.

4.5 Exposed Soil Beyond Primary Dike Toe

CHA recommends filling and re-vegetating an area of exposed soil beyond the toe of the north end of the primary dike. Although not directly related to the embankment stability, this area is undergoing erosion from storm water runoff. Re-grading and re-vegetating this area will minimize erosion and make observations of any future changes more easy to observe.

4.6 Outlet Pipe Inspections

During our site visit the outlet pipe from the primary pond to the secondary pond was submerged. This concrete pipe was constructed beneath the intermediate dike on top of sluiced ash. We recommend a condition survey be performed on this pipe to check for condition degradation, leaking joints, joint settlement, etc. that could impact the performance of the overlying intermediate dike.

The secondary pond outlet pipe was inspected in 2008 via video survey. This pipe is a corrugated metal pipe that was installed in 1958. Corrugated metal pipes are subject to corrosion and, although commonly used in the era when this dam was constructed, current industry practice recommends against using this type of pipe. CHA recommends Duke Energy considers replacing or slip-lining this pipe with a less corrosive material, or at a minimum, perform periodic video inspection of the pipe to observe for changes that will indicate when the pipe has reached the end of its useful life.

4.7 Seepage Monitoring

As discussed in Section 2.3.1, flowing seepage was observed at the toe of the secondary dike. Duke Energy was aware of this seepage and makes observations of this area during their routine inspections. CHA recommends a collection trench or pipe and monitoring weir be installed in this area to facilitate quantifiable volume measurements and sample collection. Quantifiable measurements will allow Duke Energy and outside consultants to see changes if they occur.. Any changes would need to be addressed.

4.8 Artesian Monitoring Wells

Two of twelve recently installed groundwater monitoring wells beyond the toes of the dikes show artesian conditions. This condition has been noted in MW-1S and MW-6D. CHA recommends that Duke Energy include these monitoring locations in monthly piezometer readings. Accurate measurements of head can be performed at these locations either by extending the well casings, or by fitting each well with a low pressure gage.

4.9 Hydrologic and Hydraulic Evaluation Update

As discussed in Section 3.2, CHA recommends the hydrologic and hydraulic analysis be updated to confirm that the primary and secondary ponds can safely store or pass the design storm, which is the inflow from the ¾ PMP. Changes in topography to the south of the primary pond with the filling of the former dredge pond along with an apparent lack of routing analysis of inflows through the primary pond outlet pipe warrant this updated analysis. Consideration to available storage volume in the primary pond based on anticipated ash volumes should be included in this analysis.

4.10 Hazard Assessment

We recommend that a breach analysis be performed for the Primary and Secondary Ash Ponds to determine whether development downstream would suggest a high hazard classification is warranted for the impoundments.

4.11 Stability Analyses

The CHA recreated cross sections outlined in Section 3.3.2 indicate that the factors of safety for the loading conditions calculated are above the minimum required factors of safety as discussed in Section 3.3. CHA recommends that soil properties, including shear strength under current conditions, be confirmed for the primary dike. We also recommend that a rapid drawdown analysis be performed for the dike once the soil properties are confirmed.

CHA was not provided with stability analyses for the secondary dike. We recommend Duke Energy perform stability analyses for this embankment including steady state, flood surcharge, rapid drawdown, and seismic loading conditions. CHA performed preliminary analyses for each of these loading conditions, except for the rapid drawdown condition, using similar parameters as used by Duke Energy for the primary dike. These preliminary analyses indicate that the factors of safety are at or slightly the minimum required factors of safety as discussed in Section 3.3. However, the soil properties need to be confirmed.

Stability analyses should also be performed for the intermediate dike.