CORPORATE EHS SERVICES

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Via E-Mail and Overnight Courier

July 15, 2011

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

Re: Response to EPA letter regarding Dam Safety Assessment Report
Gallagher Generating Station, New Albany, Indiana

Dear Mr. Hoffman:

Duke Energy Indiana (DEI) received the letter from Suzanne Rudzinski, Director for the Office of RCRA of the United States Environmental Protection Agency (EPA) dated June 27, 2011 and the final report from O'Brien & Gere Engineers, Inc. (O'Brien & Gere) titled "Dam Safety Assessment of CCW Impoundments Gallagher Generating Station." The site assessment was conducted on Ash Pond A and the Secondary Pond by EPA's engineering contractors on August 12 and 13, 2010.

DEI supports the EPA's objective to ensure the safe operation and maintenance of coal combustion residue impoundments and is committed to meeting all state and federal requirements. Based on ongoing monitoring, maintenance and inspections, DEI is confident that the CCR impoundments have the structural integrity necessary to protect the public and the environment.

Today's submittal is in response to above referenced letter from EPA dated June 27, 2011. As outlined in EPA's letter, the contractor made several recommendations addressing deficiencies and secondary studies/investigations. The DEI response to each of these recommendations can be found in the attachment. If you have any questions regarding this response or need additional information, please contact Owen Schwartz at 317-838-6027.

Sincerely,
Duke Energy Indiana

Bryan P. Walsh
General Manager II Regulated Fossil Station
Gallagher Generating Station

Attachment – DEI Response to EPA Recommendations

Attachment – DEI response to EPA Recommendations

6. RECOMMENDATIONS

Based on the findings of our visual inspection and review of the available records for Ash Pond A and the Secondary Pond, O'Brien & Gere recommends that engineering studies be performed to demonstrate reliable performance and adherence to dam safety standards, and that some maintenance of the embankments be performed for both ponds. The recommended measures are outlined as follows:

6.1. IMMEDIATE ACTION ITEMS

Ash Pond A and Secondary Pond

As noted above, the available engineering documentation is limited to the 2009 ATC report, which includes three drawings from the original Sargent & Lundy design (apparently updated in 1994 and 1996). Subsequent to our inspection, Duke Energy personnel contacted Sargent & Lundy in an unsuccessful attempt to obtain more engineering information. Due to this lack of documentation, it is recommended that the following additional investigations and analyses be undertaken:

☐A subsurface investigation should be performed to establish the geotechnical properties of the embankments and foundations for both ponds. Piezometers should be installed as part of this subsurface investigation to allow for measurement and monitoring of the phreatic surface (water level) through the embankments. The subsurface data should be combined with the recent survey information to establish the critical crosssections for each embankment for use in the stability analyses.

DEI Response

DEI contracted ATC Associates Inc. on January 21, 2011 to conduct a subsurface investigation on the pond embankments at Gallagher Station. As part of the subsurface investigation, peizometers were installed. From this subsurface investigation, ATC was able to establish critical cross-sections of the pond embankments.ATC provided this report to DEI on March 24, 2011.

☐An updated hydrologic/hydraulic analysis should be performed to evaluate the adequacy of the existing spillway systems, using the maximum reservoir operating levels and the ½ PMF for Ash Pond A (as required for "Significant Hazard" dams in Indiana) and the 100-year flood for the Secondary Pond. A dam breach analysis should also be considered to evaluate if a failure of the eastern embankment of Ash Pond A (separation dike) would cause overtopping and potential failure of the eastern embankment of the Secondary Pond.

DEI Response

DEI contracted ATC Associates Inc. on January 21, 2011 to conduct a hydrologic/hydraulic analysis of the existing spillway systems using maximum reservoir operating level and the ½ PMF for Ash Pond A and the 100-year flood for the Secondary Pond. Additionally, a dam breach analysis will be conducted for the eastern embankment of the Secondary Pond and the western embankment for Ash Pond A. These analyses will be included in ATC's final report, which will be completed within 6 months of the final issuance of USEPA's Dam Safety Assessment for Gallagher Station.

☐Based on the embankment cross-sections described above, the measured phreatic water levels in the piezometers, and current normal and maximum operating pools, updated slope stability analyses should be performed for each of the embankment sections. These analyses should include all applicable loading conditions, including normal pool with earthquake.

DEI Response

DEI contracted ATC Associates Inc. on January 21, 2011 to calculate an updated slope stability analysis for each embankment section utilizing information collected from borings, piezometers, and pond water operating levels. ATC's analyses will address all applicable loading conditions as requested, such as normal pool with earthquake. These analyses will be included in ATC's final report, which will be completed within 6 months of the final issuance of USEPA's Dam Safety Assessment for Gallagher Station.

6.2. LONG TERM IMPROVEMENTS

The minor deficiencies observed during the inspection do not require immediate attention, but should be corrected in the near future as part of a regular maintenance plan. The recommended maintenance items are presented below.

Ash Pond A

☐The slope of the drainage channel along the outboard toe of the western embankment should be investigated to establish if regrading of the channel would allow the standing water to drain more freely to the outlet pipe. Once the channel is regraded (if feasible), the reedy vegetation should be removed from the channel.

DEI Response

DEI has completed the work of improving the flow of water in the drainage channel along the outboard toe of the western embankment of Ash Pond A. Reedy vegetation was removed and geotextile was overlaid with rip-rap to prevent future growth of vegetation.

☐Based on the hydrologic/hydraulic analyses recommended above, a design crest elevation should be established for the embankments and low spots in the crest should be filled/raised to create a uniform crest elevation around Ash Pond A (except in the area of the landfill leachate/drain pipes).

DEI Response

As part of DEI's 3-year corrective action plan, the pond crest elevation will be evaluated to determine if it should be raised to a uniform height. In the near term, the pond water elevation will be set as recommended in the final ATC Associates Hydrologic/Hydraulic Report.

☐Piezometers installed during the subsurface investigations recommended above should be monitored annually to provide historical performance data for the impoundment.

DEI Response

At a minimum, DEI will annually monitor the piezometers that were installed during the subsurface investigation.

☐Consideration should be given to developing an Operations and Maintenance (O&M) Plan that would establish a regular inspection/maintenance program and operating procedures for use of the spillway stop logs, including setting a maximum operating level for the pond to prevent potential overtopping of the embankments during storm events.

DEI Response

A Pond Operations and Maintenance Plan will be developed for the Gallagher Station Impoundments. The plan will address required inspections and maintenance for each impoundment. Additionally, the plan will provide operational guidelines to follow such as using the spillway stop logs and establishing a proper water elevation for each impoundment. Pond water operating elevations for each impoundment will be based upon the final hydrologic/hydraulic report provided by ATC Associates Inc.

Secondary Pond

☐Based on the hydrologic/hydraulic analyses recommended above, an appropriate crest elevation should be established for the eastern embankment of the Secondary Pond. The embankment crest should then be regraded to a uniform elevation to eliminate the significant variation that currently exists in the crest elevation.

DEI Response

As part of DEI's 3-year corrective action plan, the pond crest elevation will be evaluated to determine if raising the crest elevation of the eastern embankment to a uniform height is pragmatic. In the near term, DEI will begin to study the possibility of installing two emergency spillway culverts through the eastern embankment.

☐Standard dam safety practice typically recommends the removal of trees from earth embankment sections, due to the potential for uprooting of the trees during storm events and the resulting damage to the embankment. However, since the outboard slope of the eastern embankment also serves as the Ohio River bank, the large trees growing on the slope may reduce the erosion potential from high river flows and, therefore, we recommend that these trees be left in place. However, it would be advisable to perform periodic inspections of this slope, particularly after major storm events, to identify any trees that may have been uprooted and damaged the embankment.

DEI Response

As part of the Pond Operation and Maintenance Plan, the eastern embankment of the Secondary Pond will be inspected quarterly in order to identify any damage that may have occurred to the embankment. Additional inspections will occur after major storm events and Ohio River flood events.

6.3. MONITORING AND FUTURE INSPECTION

As noted above, development of an O&M Plan would be beneficial for establishing schedules for inspection and maintenance of the impoundments and procedures for operation of the pond level controls. Regardless, we recommend that the quarterly informal inspections by Duke Energy personnel continue and that any piezometers installed during the recommended subsurface investigation program be monitored on either a quarterly or annual frequency.

DEI Response

A Pond Operations and Maintenance Plan will be created for the Gallagher Station Impoundments. The plan will address required inspections and maintenance for each impoundment. The plan will provide operational guidelines to follow such as using the spillway stop logs and the proper water elevation for each impoundment. Pond water operating elevations for each impoundment will be based upon the final hydrologic/hydraulic report provided by ATC Associates Inc. The plan will also specify monitoring the piezometers on an annual basis.

6.4. TIME FRAME FOR COMPLETION OF REPAIRS/IMPROVEMENTS

Within 6 months of the final issuance of this report, Duke Energy should retain an engineer to conduct a hydrologic/hydraulic analysis and stability analyses for Ash Pond A and the Secondary Ash Pond. A plan of action should then be developed on the basis of the findings of the engineer's analyses and the future plans for the Gallagher Station ash ponds.

DEI Response

DEI retained ATC Associates in January 21, 2011 to conduct a hydrologic/hydraulic analysis and stability analyses for Ash Pond A and the Secondary Ash Pond embankments. DEI will establish a plan of action based upon these analyses.