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

April 3, 2014

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

VIA E-MAIL

Mr. Walter Stone
NRG Corporation
1000 Main Street
Houston, Texas 77002

Re: Request for Action Plan regarding NRG Power Midwest LP- New Castle Generating Station

Dear Mr. Stone,

On September 5, 2012 the United States Environmental Protection Agency ("EPA") and its engineering contractors conducted a coal combustion residual (CCR) site assessment at the NRG Power Midwest LP- New Castle Generating 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 NRG Power Midwest LP- New Castle Generating 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 NRG Power Midwest LP- New Castle Generating 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 NRG Power Midwest LP- New Castle Generating 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 **May 5, 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
5th Floor, N-5838
Arlington, VA 22202-2733

You may also provide a response by e-mail to hoffman.stephen@epa.gov, dufficy.craig@epa.gov, kelly.patrickm@epa.gov and 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 these reports 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

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Enclosure 1

**NRG Power Midwest LP- New Castle Generating Station Recommendations (from the final assessment report)**

## CONCLUSIONS

### North Ash Pond

Based on the ratings defined in the USEPA Task Order Performance Work Statement (Satisfactory, Fair, Poor and Unsatisfactory), the information reviewed and the visual assessment, the overall condition of the North Ash Pond is considered to be FAIR. Acceptable performance is expected under all loading conditions; however, some minor deficiencies exist that require repair and/or additional studies or investigations.

**The deficiencies include the following:**

• There is poor vegetative cover or other form of stabilization over the inboard slopes, which are experiencing some minor rill erosion.

• The use of concrete Jersey barriers along the access drives may contribute to erosion along the inboard slopes. Stormwater runoff is collected by the barriers and then flows through gaps between the concrete units to the slope below as concentrated flow.

Other than the conditions cited above, the owner has implemented regular visual inspections and performs routine maintenance which appears to be sufficient to keep the impoundment in good working order.

In addition to the physical deficiencies, we also noted that no geotechnical data or associated slope stability analyses are on record for the impoundment. Given the nature of this impoundment as primarily incised, with the operating water level maintained below the level of the surrounding natural grade, there do not appear to be any critical slopes requiring a stability analysis in the immediate future. Completion of a slope stability analysis should be considered if modifications to the impoundment structure or significant alterations in the normal water level are proposed in the future. The operating pond water level provides approximately 4 feet of freeboard that would accommodate the direct runoff from a significant precipitation event including the Probable Maximum Flood. No hydrologic or hydraulic analyses are on record for the impoundment to determine the likelihood of overtopping during various design storm events.

### South Ash Pond

Based on the ratings defined in the USEPA Task Order Performance Work Statement (Satisfactory, Fair, Poor and Unsatisfactory), the information reviewed and the visual assessment, the overall condition of the South Ash Pond is considered to be FAIR. Acceptable performance is expected under all loading conditions; however, some minor deficiencies exist that require repair and/or additional studies or investigations.

**The deficiencies include the following:**

• There is poor vegetative cover over the inboard slopes, which are experiencing significant erosion.

• The slope beneath the former bottom ash discharge piping is experiencing significant erosion. The structural support for the piping has been exposed.

• The outboard slope of the southern embankment is heavily vegetated, which limits visual inspection.

• The use of concrete Jersey barriers along the access drives may contribute to erosion along the inboard slopes. Stormwater runoff is collected by the barriers and then flows through gaps between the concrete units to the slope below as concentrated flow.

Other than the conditions cited above, the owner has implemented regular visual inspections and performs routine maintenance which appears to be sufficient to keep the impoundment in good working order.

In addition to the physical deficiencies, we also noted that no geotechnical data or associated slope stability analyses are on record for the impoundment. Given the close proximity of the South Ash Pond to the McKee Run, the lack of any traditional slope armoring, setbacks or benches and the lack of an engineered liner system within the impoundment, a slope stability

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analysis would typically be recommended for the impoundment as part of this assessment. However, O'Brien & Gere does not recommend a slope stability analysis at this time based on consideration of the following factors:

• The bottom elevation of the pond is approximately the same elevation as the McKee Run, with a normal water surface elevation at approximately 8 feet above the normal water surface of the McKee Run. The outboard slope (the natural bank of the McKee Run) is typically about 2:1. It is probable that the base of the natural slope is partially saturated during normal conditions, but no seepage was observed at the toe of slope, which is a condition that would typically be necessary to create potential slope stability problems for a natural slope at this inclination and height. Further, the width to height ratio of the slope considering the width at the water line is large, which further reduces the likelihood of deep seated slope failures capable of releasing the impounded contents of the unit.

• The South Ash Pond has existed in this location in generally the same configuration since 1955. The only documented failure during that time was due to a failure along the original CMP outlet in 2006. This failure was addressed by relocating the outlet piping to a new alignment outside of the southwest perimeter of the unit.

• If the outboard slope was prone to instability, there would be some history of slope sloughing, or other outward signs of slope distress. No signs of such distress or of past repairs or stabilization efforts were observed in the site visit.

• The South Ash Pond is not actively used for the storage of CCW. The water stored within the pond consists of storm precipitation directly into the pond and occasional overflow runoff from the nearby sediment settling basin for the plant coal pile. A slope failure would therefore only release a minimal amount of residual CCW, if any, from the bottom of the pond. Under normal operations, the pond is rarely, if ever, full of water and never contains an appreciable amount of CCW.

• The plant is planned for conversion to natural gas in about 2 years. Were the impoundment to be used in the long term for continued storage of stormwater or returned to service as a storage facility for CCW, stability analyses would be appropriate.

If this impoundment were to remain in operation for an extended period of time or if CCW were to be again impounded within the pond, we would likely recommend a geotechnical study and slope stability evaluation.

However, given its long history with no incident and upcoming closure in the near future, we believe that some minor repairs and erosion stabilization of the inboard slopes and a regular visual monitoring plan looking for signs of slope distress is the most practical recommendation until final decommissioning and closure.

The Flood Insurance Study for Lawrence County, Pennsylvania shows that the South Ash Pond is located within the 100-year floodplain of the Beaver River and McKee Run. The Flood Insurance Study did not include a detailed study to predict a 100-year flood elevation of the Beaver River or McKee Run at this location. The limits of the floodplain indicated on Map Panel 42073C0253D are based on approximate methods and are therefore interpreted from topographic mapping. While it does not appear that floodwaters in the Beaver River pose a significant risk of scour or erosion of the embankment along the McKee Run, the potential for floodwaters to overtop the embankment and fill the South Ash Pond is unknown. Similarly, the effects of high floodwaters on the function of the outlet works for both the North Ash Pond and South Ash Pond are uncertain. It is possible that interaction between floodwaters in the Beaver River and the water impounded in the Ash Ponds may occur by overtopping of an embankment or outlet system manhole, resulting in the possible release of bottom ash.

The normal operating pond water level provides approximately 10 feet of freeboard that would accommodate the direct runoff from a significant precipitation event including the Probable Maximum Flood. Some or all of this available storage volume is likely to be used during a large storm event for the temporary storage of inflow from the coal pile sediment basin. No hydrologic

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or hydraulic analyses are on record for the impoundment to determine the likelihood of overtopping during various design storm events.

**RECOMMENDATIONS**

Based on the findings of our visual assessment and review of the available records for the North Ash Pond and the South Ash Pond, O'Brien & Gere recommends that additional maintenance of the embankments be performed to correct the erosion, drainage, and other miscellaneous deficiencies cited in the Conclusions section of the final report.

**URGENT ACTION ITEMS**

None of the recommendations are considered to be urgent, since the issues noted above do not appear to threaten the structural integrity of the ash pond embankments in the near term.

**LONG TERM IMPROVEMENT**

The deficient conditions observed during the assessment do not require immediate attention, but should be implemented in the near future as part of a regular maintenance plan. The recommended maintenance/improvement actions are provided below:

**North Ash Pond**

- Crest:
  - o Fill ruts on crest as needed. Consider the use of crushed stone in lieu of compacted ash to provide a more stable driving surface.
  - o Consider re-establishing vegetative cover on the crest where feasible (i.e., where regular vehicle access is not required).
  - o Consider use of an alternate vehicle barrier to the existing Jersey barrier system to reduce concentration of stormwater runoff from access drives or install erosion protection measures on the inboard slopes in accordance with an engineered design.
- Inboard slopes:
  - o Monitor all inboard slopes for signs of erosion. Repair in accordance with an engineered design.
  - o Consider regrading and revegetating the inboard slopes above the waterline to reduce erosion due to stormwater runoff. Any regrading should be done in accordance with an engineered design.
- Additional studies:
  - o Perform a hydrologic and hydraulic analysis of the impoundment for the 1-year through 100- year, 24-hour duration design storm events to confirm that adequate freeboard is available during normal operating conditions. A revised configuration of the secondary outlet stop log elevations could be considered in this analysis and implemented in the field to provide additional freeboard if necessary.

**South Ash Pond**

- Overall:
  - o Maintain the current operation of the South Ash Pond as storage for stormwater runoff only. If resumed, the impoundment of bottom ash within the South Ash Pond may require additional studies and engineering analysis.
- Crest:
  - o Fill ruts on crest as needed. Consider the use of crushed stone in lieu of compacted ash to provide a more stable driving surface.
  - o Consider re-establishing vegetative cover on the crest where feasible (i.e., where regular vehicle access is not required).
  - o Consider use of an alternate vehicle barrier to the existing Jersey barrier system to reduce concentration of stormwater runoff from access drives or install erosion protection measures on the inboard slopes in accordance with an engineered design.
- Inboard slopes:
  - o Repair erosion of the slope beneath the former bottom ash discharge piping. Repairs or regrading should be performed in accordance with an engineering design.

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o Monitor all inboard slopes for signs of continuing erosion. Repair in accordance with an engineered design.

o Consider regrading and revegetating the inboard slopes above the waterline to reduce erosion due to stormwater runoff. Any regrading should be done in accordance with an engineered design.

• Outboard slopes:

o Increase maintenance activities to control vegetation on the outboard slope of the southern embankment above the McKee Run to facilitate visual inspection of the slope for signs of erosion, movement, or seepage.

• Additional studies:

o Perform a hydrologic and hydraulic analysis of the impoundment for the 1-year through 100- year, 24-hour duration design storm events to confirm that adequate freeboard is available during normal operating conditions. The analysis should include consideration of the volume of excess inflow from the coal pile sedimentation basin stored in the impoundment during a storm event.

o Perform a hydrologic and hydraulic analysis of the Beaver River and McKee Run at the location of the South Ash Pond and Outfall 004 in order to determine the 100-year flood

**MONITORING AND FUTURE INSPECTION**

O'Brien & Gere recommends consideration of independent inspections by licensed dam safety engineers on at least a biennial basis. Future inspections may be required by the Pennsylvania Department of Environmental Protection should they determine that these impoundments will be regulated in the future.

**TIME FRAME FOR COMPLETION OF REPAIRS/IMPROVEMENTS**

We recommend that the maintenance activities to control vegetation be implemented in the Spring of 2014. The remaining improvements, surveys, engineering and repairs may be required or may be rendered moot by an overall closure plan for the impoundments if the anticipated plant conversion to natural gas occurs as scheduled in 2016. Completion of these items may be deferred until that time, unless long-term continued operation of the plant as a coal-fired generating station is anticipated.

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