Tampa Electric Company (TEC) Comments

DRAFT

Coal Combustion Residue Impoundment
Round 9 - Dam Assessment Report
Big Bend Power Station
Ash Management Units
Tampa Electric Company
Hillsborough County, Florida

1.1.2 Conclusions Regarding the Hydrologic/Hydraulic Safety of the Management Unit(s)

No hydrologic or hydraulic analyses were provided to Dewberry.

TEC Comment: TEC is in the process of soliciting quotes from geotechnical engineering firms for the performance of systematic soil borings of the dikes for the four impoundments in question. The data obtained from analysis of the core samples will be used to verify that the original design assumptions and stability analyses for the dikes remain valid and to obtain phreatic surface data sufficient to perform hydraulic analyses. It is possible that these analyses will be complete and available prior to finalization of this report.

1.1.3 Conclusions Regarding the Adequacy of Supporting Technical Documentation

The supporting technical documentation is inadequate. Engineering documentation reviewed is referenced in Appendix A. The following documents were not provided:

- ***Hydrologic/Hydraulic Analysis***

TEC Comment: As stated above TEC is in the process of obtaining proposals for these analyses, which will be provided when available.

- ***Slope Stability analysis for static (normal) and seismic loading conditions using actual data instead of design parameters for the dike***

TEC Comment: As stated, data will be obtained to verify the original static slope stability analyses. However, it is TEC's understanding that analysis of seismic loading is not applicable since the Big Bend site is not within an identified seismic zone.

- ***Surveillance, monitoring and inspection reports***

TEC Comment: As stated by TEC during the site inspection, the ponds are inspected on a daily basis to verify pump operations and document that water levels in these ponds are being maintained at safe operating levels. However, even though dike conditions are assessed during these inspections, it is true that the daily inspection report does not specifically document dike conditions. Therefore, TEC is in the process of implementing a Dam Safety and Inspection Program for the Big Bend impoundments. This program will include personnel training for TEC staff who are designated to perform routine inspections, documentation of dam condition and any corrective actions, and annual inspections and reports by a registered dam safety engineer.

1.1.5 Conclusions Regarding the Field Observations

Dewberry staff was provided access to all areas in the vicinity of the management unit required to conduct a thorough field observation. The visible parts of the embankment dikes were observed to have no signs of overstress, significant settlement, shear failure, or other signs of instability. Embankments appear structurally sound. There are no apparent indications of unsafe conditions. There was a minor tear in the South Economizer Ash Pond liner that needs to be repaired (this pond is inactive and closure procedures are underway).

TEC Comment: The above noted liner tear will be repaired by TEC's liner repair and installation contractor. The contractor will be onsite for another project in the near future and will perform this repair. As noted, this pond has already been dewatered and capped with soil. In the future, TEC will be consulting with the FDEP to determine final closure requirements for this impoundment.

1.1.7 Conclusions Regarding the Adequacy of the Surveillance and Monitoring Program

The surveillance program appears to be inadequate. The management unit dikes are not instrumented. There is no established surveillance program other than staff visually observing the units periodically. No documentation of past inspections or standard inspection procedures was provided.

TEC Comment: To reiterate, Big Bend staff inspects the impoundments daily. However, TEC is implementing a formal dam safety program for these impoundments, including daily visual inspections and documentation of dam conditions in addition to other water level and other operational data which is already being accumulated. This will be a written inspection program, which will also include an annual inspection and certification by a dam safety engineer.

1.1.8 Classification Regarding Suitability for Continued Safe and Reliable Operation

The facility is rated POOR for continued safe and reliable operation due to the lack of supporting technical documentation. Based on the visual observation of the ash ponds, they appeared to be in satisfactory condition, but without the documentation requested in section 1.2.3, there is no way of making an accurate assessment of the unit.

TEC Comment: Tampa Electric does not agree with this rating for the Big Bend ash ponds. Even though the impoundments have not been subjected to additional structural testing and analysis subsequent to their original construction, they were constructed under the supervision of a design engineer, who was required to certify that the ponds were built in accordance with the submitted design specifications. These ponds are lined with 80 mil HDPE, an enhancement which goes beyond standard industry practice for ash impoundments and prevents the type of conditions which resulted in the Kingston dike failure mentioned in the report. Finally and perhaps most importantly, twenty-six years of operational history would indicate that these units are extremely safe. There have never been any indications of structural instability or any other observable conditions such as seepage, boils, sand cones, deltas, siltation in area drainage ditches, ore surface cracking, bulging or subsidence to indicate a safety concern with these four impoundments.

1.2 RECOMMENDATIONS

1.2.1 Recommendations Regarding the Structural Stability
The following issues need to be addressed with routine maintenance:

- ***Remediate the two minor depressions along the crest of the South Bottom Ash Pond;***

TEC Comment: TEC is planning to repair these depressions.

- ***Repair the shear failure of the liner within the South Economizer Ash Pond.***

TEC Comment: As previously mentioned, plans are underway for the repair of this section of the liner.

1.2.2 Recommendations Regarding the Hydrologic/Hydraulic Safety
Hydrologic/Hydraulic analysis should be provided.

TEC Comment: TEC is planning to perform hydraulic analyses in conjunction with the boring program described above.

1.2.3 Recommendations Regarding the Supporting Technical Documentation
Supporting technical documentation is insufficient and the following documents need to be provided:

- ***Hydrologic/Hydraulic analyses***

TEC Comment: Analysis to be provided when available.

- ***Slope stability analyses for steady state (normal) and seismic conditions for current (as-built) conditions of the embankments***

TEC Comment: The original stability analyses will be confirmed, as described above.

- ***A documented inspection procedure and log of inspections***

TEC Comment: The inspection procedure is being formulated and will be provided as soon as it is complete. In the interim, the current daily inspection log forms will be modified to include observations of dike conditions.

1.2.4 Recommendations Regarding the Field Observations

The following recommendations have been made based on the field observations:

- ***Repair the shear failure in the liner of the South Economizer Ash Pond***

TEC Comment: Liner repairs planned.

- ***Maintain and prevent further expansion of woody vegetation onto the downstream slope of South Bottom Ash Pond;***

TEC Comment: Vegetation at the bottom of the downstream slope will be cleared and maintained to allow for inspection of dike conditions in this area.

- ***Remediate two minor depressions in South Bottom Ash Pond crest.***

TEC Comment: TEC is planning to repair these depressions.

1.2.6 Recommendations Regarding the Surveillance and Monitoring Program

Field observations should be recorded and documented at least on a monthly to quarterly basis. An annual observation should be performed and documented by a Professional Engineer licensed in the State of Florida.

TEC Comment: In addition to the visual observation of dike conditions to be performed during the daily routine inspection, TEC will incorporate quarterly dam safety inspections and an annual inspection and report by a Florida PE.

1.2.7 Recommendations Regarding Continued Safe and Reliable Operation

Repair liner on South Economizer Ash Pond.

TEC Comment: TEC is in the process of obtaining quotes for this repair work.

NOTE

Subject: EPA Comments on Tampa Electric Co, Big Bend Power Station,
Apollo Beach, FL
Round 9 Draft Assessment Report

To: File

Date: November 1, 2011

1. On p. ii, INTRODUCTION, SUMMARY CONCLUSIONS AND RECOMMENDATIONS, last paragraph, remove “is” and replace with “are.”

2. On p. ii, INTRODUCTION, SUMMARY CONCLUSIONS AND RECOMMENDATIONS, second paragraph, replace “As detailed in Section 1.2.5, there are three recommendations based on field observations that may help to maintain a safe and trouble-free operation.” with “As detailed in Section 1.2, there are specific recommendations that may help to maintain a safe and trouble-free operation.”

3. On p. 1-1, Section 1.1 Conclusions: Add at the end of the paragraph the rationale for non-inclusion of three additional ponds identified in the utility’s survey response: Settling Pond, North and South Recycling Ponds. Can these other impoundments be identified on the aerial view on Page 2-2?

4. On p. 1-2, Section 1.1.8, please refrain from rating the “facility” as a whole, discussion needs to focus on each individual unit.

5. Page 1-4, section 1.3.2: list the multiple units assessed, currently says "unit", implying only one unit assessed.

6. On p. 2-2, add a space in between the section 2.2 title and its text.

7. On p. 2-5, section 2.3, last paragraph, please indicate the hazard potential rating for each unit, not the facility as a whole.

8. On p. 2-5: Drainage area is assumed to be the surface area of the ponds. Confirm that all these ponds are indeed perched. (Reiterated again on Page 6-2).

9. Appendix A, please identify each document before its inclusion in the appendix.

10. Is fair rating warranted? No H&H but conclude it is likely that impoundments will pass design storm given that they are all perched. All visual assessment looks good. No stability analysis for actual conditions; stability analysis for design conditions acceptable. All low hazard structures.

11. The EPA checklists say that impoundments where designed by "AEP - in house personnel" should this say "TECO in house personnel" or does AEP co-own some of these units? Please explain in the introduction and/or check-lists.

M E M O R A N D U M

TO: Jana Englander

FROM: Jerry Strauss

cc:

Date: December 09, 2011

SUBJECT: TEC, Big Bend Power Station, Response to Comments

EPA Comments:

- Fair Rating : is warranted primarily because the Static loading structural stability analyses are based on design values and assumptions from 1981 construction documents. No actual field, as-built data are used in the structural stability analyses. TEC noted that the ponds were built as designed and there have been no major changes to the ponds.
- Note that seismic analyses are not applicable for these ponds since they are in a seismic zone with 0 ground acceleration so safety calculations would “not compute” (infinite safety factor).
- Made changes in wording, Section 1.
- Added information on why 3 ponds excluded from report (do not contain CCR). Ponds not put on aerial photo to avoid confusion over which ponds are relevant.
- Confirmed the perched condition of the ponds.
- Editorial changes made.
- Appendix B revised

Utility Comments:

- TEC readily admitted they do not have adequate information for the ash ponds and is contracting to perform more appropriate H&H studies and static loading analyses.
- TEC is instituting new procedures to improve maintenance and monitoring.
- Liner repair is scheduled.