

Fact Sheet
Ash Storage Area Dikes History and Inspection Reports
December 23, 2008

Background

The ash resulting from the burning of coal is categorized as ‘fly ash’ and ‘bottom ash.’ The fly ash is light weight ash, and bottom ash is heavier, coarse residue.

Both fly and bottom ash are pumped to ash ponds. Once the ash settles in the ash pond, the ash is pumped to ‘dredge cells’ and the water flows into a ‘settling pond.’ Water from the settling pond discharges, in accordance with permitting requirements, through pipes into the plant intake channel.

Dredge cells are engineered facilities that are permitted by the states in which they are constructed, are surrounded by dikes constructed using compacted ash and incorporate engineered drain systems, water runoff controls, and monitoring systems.

The ash in the Kingston dredge cell storage areas reached heights up to about 55 feet above the water level in the ash pond prior to the failure, which was within permit limits.

Inspections

TVA has a comprehensive inspection process for ash containment that includes four levels of inspection and review with varying levels of detail required for each.

- Each plant does a visual inspection daily.
- Quarterly solid waste inspections are completed by state personnel in coordination with permitting requirements.
- Kingston plant personnel conduct seep inspections of the dikes quarterly.
- Detailed inspections of the ash handling and storage dikes are done annually by TVA engineering staff with written reports that include findings and recommendations.

The most recent annual inspection was conducted in October 2008. The formal report is not complete for this inspection, however a preliminary report shows that a “wet spot” was found, indicating a minor leaking issue. There were no significant problems found that indicated that the dikes were unstable to the point of failure.

The formal report for the annual inspection conducted in December 2007 is attached.

For the December 2007 report, the exterior slopes of the dikes (the sides opposite of the stored ash) were found to be sound. Minor conditions that were observed with other portions of the dikes included:

- Signs of erosion at the water line

- Roadways on the dikes with ruts.
- Some rutting between the active pond and a dredge cell

There were no noticeable increases in seep flow observed during the 2008 quarterly inspections by plant personnel.

In 2003 and 2006, the dike at Kingston experienced smaller, localized seepage that released some ash from one of the dredge cells. After each incident, TVA made changes and repairs to improve the condition of the dike.

- These “failures” were determined to be caused by excessive water seepage inside the retention dikes due to inadequate internal drainage and infiltration of surface water into the dike.
- In 2003, a small depression and wet area on one of the dikes was noticed along with seepage from the bottom of the dike outside of the engineered drainage system. This released a small amount of ash into a drainage ditch, that when it rained caused the ditch to overflow onto Swan Pond Road.
 - In addition to repairing the damaged dike, drainage - similar to ‘french drains’ used for building foundations - was added to the dike.
- A smaller slope “failure,” just down from the area described above, occurred in 2006 and caused some more of the ash to seep from the dike into the adjacent ditch.
 - In addition to repairing the damage to the dike, additional improvements were made including:
 - Special, high capacity drains called spring boxes
 - Wells and water pressure monitoring systems
 - Improvements to surface drainage
 - Reinforcement of the toe area of the dike in the damaged area
- The previous problems were in an area of the dike southwest of the suspected location of the current failure.

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