



Update on Kingston Ash Spill

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History of Kingston Fossil Plant

- TVA part of Kingston community since early 1950s
 - Construction of plant began in 1951
 - First unit began operation in 1955
- At time of completion, world's largest coal-burning plant
- About 300 people work there
- Has nine generating units with a capacity of 1600MW
- Burns 14,000 tons of low-sulfur coal daily with nine units
 - ~1,000 tons of ash produced daily
- Produces enough electricity to serve 700,000 homes





History of Failed Dredge Cell

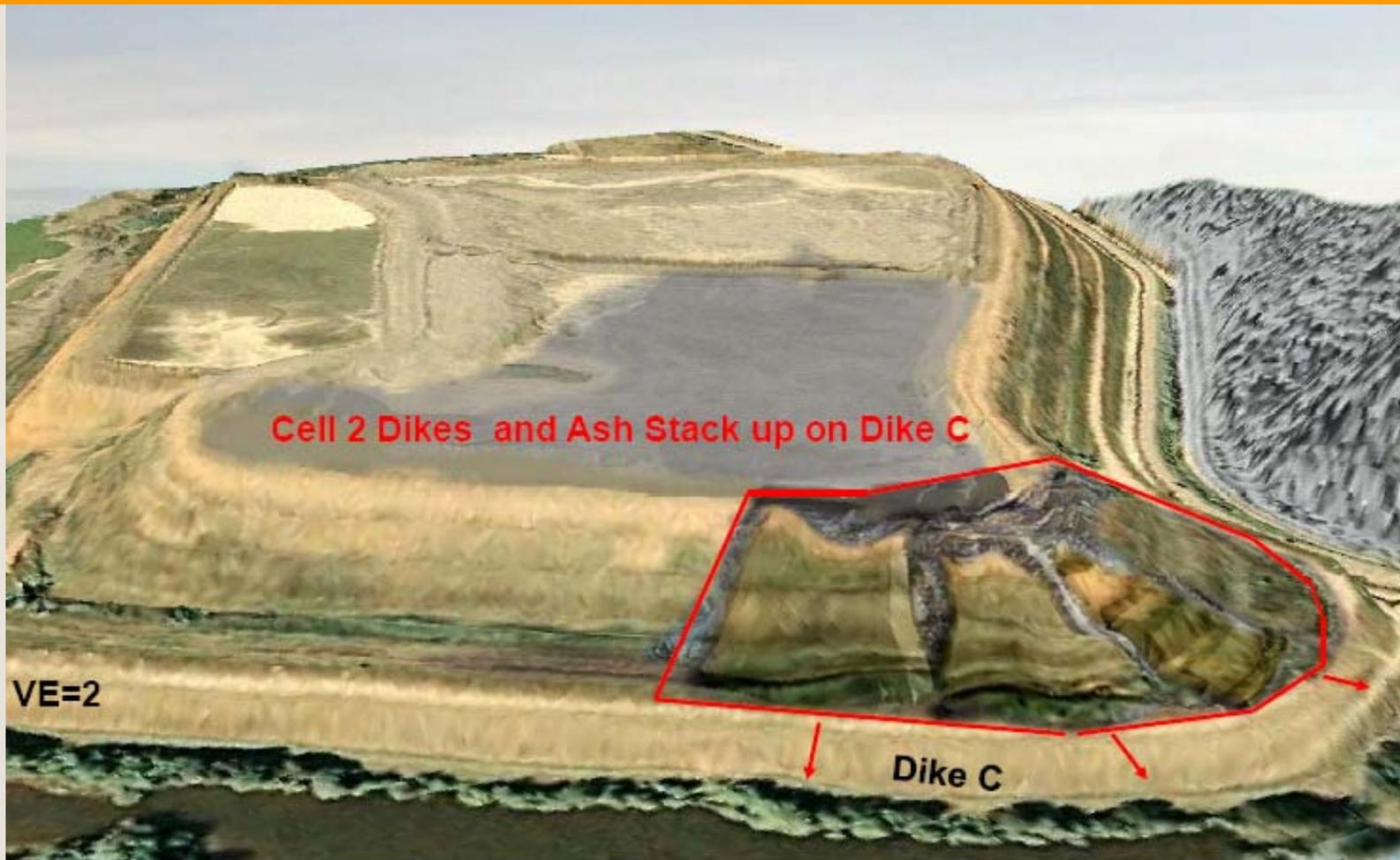
Chronology at Swan Pond Creek

- 1924 Swan Pond Creek Flows into Emory
- 1942 Watts Bar Reservoir Filled
- 1954 Initial Ash Pond Operational
- 1958 Dike C for Full Ash Pond Completed
- 1965 Initial Ash Pond Filled
- 1978 Settling Pond Constructed, Original Spillway Out
- 1984 Begin Filling Dredge Cells No. 1 & 2
- 1987 Filling in Cells 1 and 3
- 1994 Completed Dike D, Filling Cells 1, 3 and 2
- 1996 Began Re-Filling Cell 2 with 200' Setback Dike A
- 2004 Began Filling Phase I Interim Dredge Cell
- 2008 Failure of Cells 2, 3 and the Phase I Cell



Failure of Dredge Cell

Dike Failed on December 22, 2008, between midnight & 1 a.m.



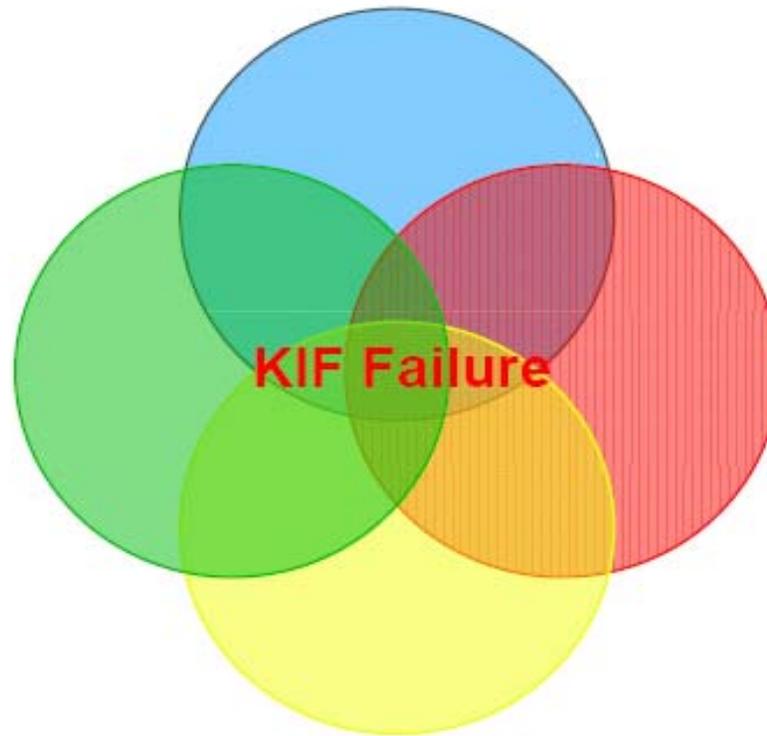
December 22, 2008 Expected Failure Mode at NW Corner of Cell 2



AECOM June 2009 Root Cause Report

Increased Loads Due to Higher Fill

Hydraulically
Placed
Loose Wet Ash



Fill Geometry &
Setbacks

Unusually Weak Slimes Foundation



What Happened – Initial Failure

Initial effects

- 5.4 million cubic yards of coal ash released
- Debris covers about 300 acres (about half a square mile)
- No injuries
- 3 homes uninhabitable, 23 others damaged
- Roads, rail line and utilities damaged



Aerial View of Site – Post Event





Initial Emergency Response

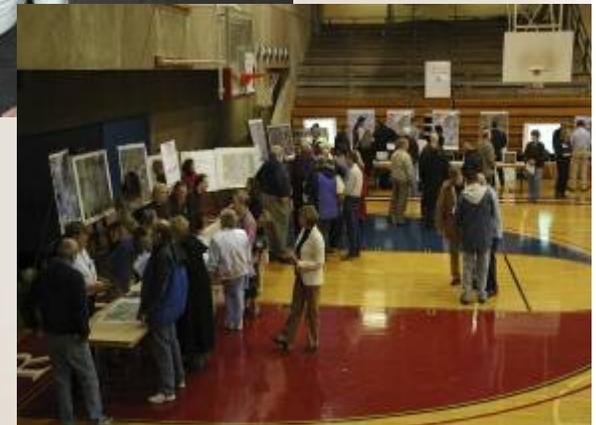
- Worked closely with:
 - Roane County Emergency Management Agency
 - Tennessee Department of Environment & Conservation (TDEC)
 - Tennessee Emergency Management Agency (TEMA)
 - U.S. Environmental Protection Agency (EPA)
 - U.S. Army Corps of Engineers
 - U.S. Department of Homeland Security
- Established unified incident command center with EPA, state and local agencies
- Inspected site to verify no further releases





Initial Outreach Response

- Ensure neighbors are safe
- Arrange temporary housing + incidentals
- Respond to property damage
- Dispatch face-to-face outreach teams
- Conduct community meetings
- Establish comprehensive Web site to share information
- Established an Outreach Center and public phone line
- Established a Claims process





Kingston Recovery Objectives

Kingston Recovery Project Objectives

- **Ensure the Safety of Citizens and Response Personnel**
- **Keep the Public and Stakeholders Informed of Response Activities**
- **Maximize the Protection of Environmentally Sensitive Areas**
- **Return Community to Normal Conditions**



Early Environmental Monitoring

- Began ongoing sampling of air, water & soil
- Stabilized site to prevent further movement of ash
 - Deployed booms to confine floating debris and cenospheres
 - Began building dikes to confine ash in the water
 - Began dust control measures with spray-on dust inhibitors and applying straw & seeding





Scope of Cleanup

Failed Ash Cell

Dec 22 2008 10:18





Scope of Cleanup

Failed Cell and Former
Dike Area





Scope of Cleanup

Aerial of Spill -BEFORE





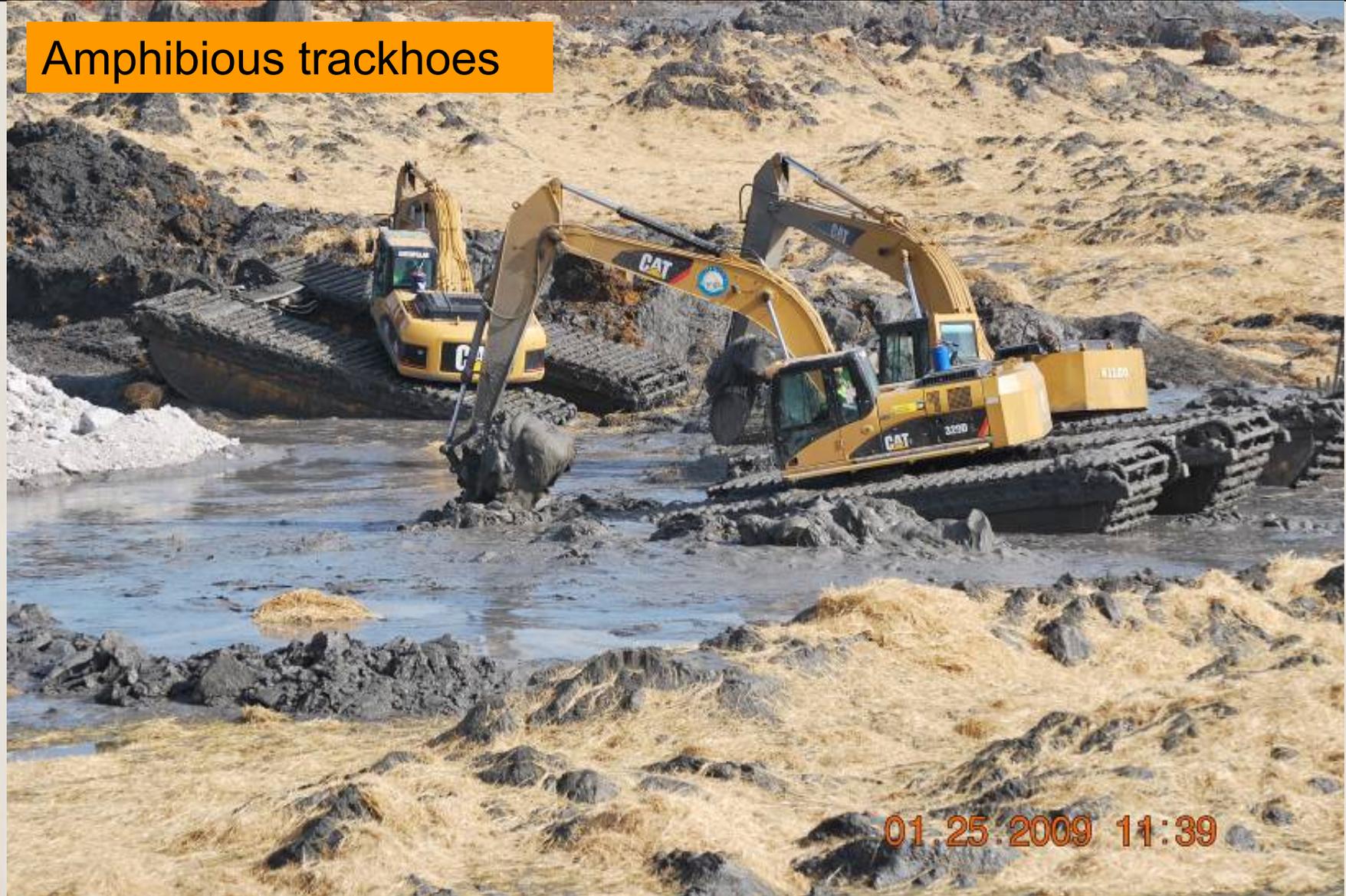
CERCLA

- TVA and EPA have decided to conduct remediation of the KIF Ash Release under the regulatory structure of CERCLA, the Comprehensive Environmental Response, Compensation & Liability Act
- CERCLA provides TVA, regulators, and the public with a clear path forward to clean up the site. Advantages include:
 - Structured approach for making environmental remediation decisions
 - Structured approach for community involvement
 - Provides a clear set of worker health and safety requirements
 - Meets Federal and State requirements; allows TVA to meet non-statute requirements that may be more stringent
- TVA and EPA signed an Order May 11, 2009 that dictates roles and responsibilities of each party.



Scope of Cleanup

Amphibious trackhoes





Cenospheres Cleanup

Collecting cenospheres ...



... and storing them





Ash Processing

River Dredge

Settling Pond



Rail Loading

Temp Processing Area

Dipping Ash Sluice Channel

Discharge into Rim Ditch



River Dredging





Pumping Into Rim Ditch

Dredge Material Pumped
Into Rim Ditch





Dipping Ash From Rim Ditch

Dredge Material Dipped by Back Hoes from Rim Ditch to Processing Area





Loading Rail Cars



Dried Ash Loaded
Into Rail Cars



Ash Disposal

Rail Car Burrito Liner





Ash Disposal

Disposal of Released Ash:

- Current Transportation: Rail
- Other: Barge, Truck
- Alabama site

Long Term Options:

- Dry Fly Ash Collection
- By Product Marketing
- Reclamation Sites
- Existing Class I or II Landfills
- Greenfield Disposal Sites
- Brownfield Sites - Structural Fill



Class I landfill in Alabama, EPA Certified



Soil & Ash Sampling

- Except for arsenic, concentrations of metals in escaped ash are well below EPA Region 4 Removal Action Levels
 - In most cases, not much different from non-agricultural soils
- Ash and soil tested for radioactivity
 - Kingston ash less radioactive than low-sodium table salt





Water & Air Sampling Results

- Well over 2,000 tests by TVA, TDEC & EPA continue to confirm
 - Municipal drinking water & water sampled from private wells continue to meet standards for drinking water
- More than 64,000 of air-quality results show the air is better than National Ambient Air Quality Standard for particulates



- Fish (whole body and tissue)
- Benthic invertebrates (bottom of food chain)
- Birds and eggs (food chain effects)
- Insects (food source)
- Aquatic Life Toxicity





Operational Results

- 357,499 yds³ of ash removed from the river to date
- 360+ acres of Flexterra applied
- 6,145,500 gallons of Cenosphere slurry collected
- 67,963 bags of shoreline debris collected
- 959 tons of light debris collected w/ barge-mounted excavators
- 64,000+ air samples
- 1,800+ river water samples
- 8 miles of road rebuilt or repaved



Continued Outreach

- Public Meetings
- Outreach Center
- Long-term Recovery Committee
- Property Purchases
- Business Claims
- Community Involvement Plan
- ORAU Health Contract
- Research RFPs Peer Reviewed
- Community Action Group





Progress...

Failed Dredge Cell from Swan Pond Road





Before...

Tracks adjacent to Swan Pond Road - BEFORE





Before...

Tracks and Swan Pond Road - BEFORE





Progress...

Tracks and Swan Pond Road - AFTER





Before...

Connector Swan Pond Road and Circle - BEFORE





Progress...

Connector Swan Pond Road and Circle - AFTER





Before...

Church Slough -BEFORE





Progress...HOPE!

Church Slough -TODAY

















Questions?

