John Sevier Dry Fly Ash Stack
Sequencing of CCR Waste
Facility Closures

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http://www.flyash.info/
Presentation Outline

- Site History and Facility Overview
- Closure Sequence Drivers
- DFAS Closure
- Challenges and Lessons Learned
- Questions
Site History - TVA John Sevier Fossil Plant

- Northeast Tennessee near Rogersville, Hawkins County
- Constructed along the southern bank of the Holston River
Site History- TVA John Sevier Fossil Plant

- Years in service: 1957-2012
- Four coal-fired generating units and the following ash disposal areas:
  - Dry Fly Ash Stack (DFAS)
  - Bottom Ash Pond (BAP)
  - Ash Disposal Area J (J-Pond)
- Power Generated:
  - 4 billion kilowatt-hours of electricity per year
- Consumed approximately 5,700 tons of coal a day during peak operations
Facility Overview- TVA John Sevier Fossil Plant

- Toe-Drain
- Septic System
- Dry Fly Ash Silo
- Water Treatment, Hopper, HED Wash, Util. Bldg Sumps/Drainage
- J-Pond (Inactive)
- West Stilling Pond
- Intermediate Stilling Pond
- Dry Fly Ash Stack
- Coal Yard
- Coal Yard Runoff Pond
- Iron, Copper, and Leachate Ponds
- JSF Power Plant
- Bottom Ash Pond
- J-Pond (Inactive)
Site History- JSF Dry Fly Ash Stack

• Initial Ash Pond Development
  • Began as a series of ash ponds
  • Initial 30-40 foot tall dikes constructed to approximate elevation 1,100 feet
  • CCR’s sluiced intermittently until 1993
  • 120 Acre Footprint
Site History- JSF Dry Fly Ash Stack

• Initial Ash Pond Development (cont.)
  • Ammoniated Ash
    – In 2007-2008, the plant began producing ammoniated ash due to HERT equipment
    – Liner system constructed in the active stacking area to control related ash contact water
    – Contact water conveyed through a series of treatment ponds
Closure Sequence Drivers

- Regulatory/Permit requirements
- Capacity
- Construction Season
- Stormwater Management
- Material balance per stage
DFAS Closure – Construction Stages

- Stage 1: ~14 Acres
- Stage 2: ~38 Acres
- Stage 3: ~42 Acres
DFAS Closure – Cap System

- 6” Vegetative Soil
- 18” Protective Soil Cover
- Geocomposite
- Geomembrane Cap
DFAS Closure – Geocomposite Trench

TRENCH ELEVATIONS ARE 2'-0" MIN. ABOVE ADJACENT DITCH INVERT AND PIPE SLOPES PARALLEL WITH DITCH IN THE SAME DIRECTION OF FLOW.

CONTINUE GEOCOMPOSITE DRAINAGE THROUGH TRENCH
PERFORATED 6" HDPE PIPE
DFAS Closure – Geocomposite Outlet
DFAS Closure – Stormwater Discharge

- 5 New outfalls to the Holston River
- Low Flow Crossings at lower road
DFAS Closure – Stormwater Discharge
DFAS Closure – Closure Contingency
DFAS Closure – Closure Contingency

Ancillary Pond Closures and DFAS Closure Spoils Volume
Remaining Permitted Airspace
Final “Permit” Grade
Existing Groundline

TYPICAL SECTION D-D’
DFAS Closure – Final Closure Configuration
Challenges and Lessons Learned – JSF DFAS

- Stage Divides

Stage 1
13.4 ac

Stage 2
38.2 ac

Stage 3
41.5 ac
Challenges and Lessons Learned – JSF DFAS

• Seasonal elevated phreatic levels
• “Perched” phreatic conditions
Challenges and Lessons Learned – JSF DFAS

• Stormwater Management
QUESTIONS?