Agenda

- Site overview
- Beneficial reuse of gypsum and CCR
- Wet to dry initiative
- Improvements to gypsum wastewater treatment
- TDEC Order investigation/actions
- Continued operation
Cumberland Fossil Plant

**Commissioning Date:** 1972

**Size of facility:**
Approx 1,300 acres

**Output:** 2,470 megawatts

**Number of homes powered:** 1.1 million

**Amount of CCR material:**
Approx 21.5 million cubic yards

**CCR Beneficial Reuse:**
75% reuse of Fly Ash
90% reuse of Gypsum

**Jobs in Clarksville Area:** 446
Overview

- Gypsum Disposal Complex
- Dry Fly Ash Stack
- Gypsum Wastewater Treatment Plant
- Bottom Ash Dewatering
- NPDES Outfall
- Main Ash Pond
- Dry Fly Ash Silos
- Proposed Landfill
- Southwest of Site

~$100 M investment

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Beneficial Reuse of Gypsum

Every year, 90% (750,000 tons) of the gypsum produced is sold for reuse.

Adjacent wallboard plant utilizes Cumberland’s high quality gypsum in its manufacturing process.

The wallboard plant employs 140 people directly and created 306 indirect jobs.

Since the wallboard plant was constructed, 15+ million tons have been beneficially used.
Cumberland Water Treatment

- Supports ELG compliance and conversion of wet to dry CCR handling
- Adopted phased approach to construction
  - Focus on physical and chemical treatment
- Optimized scrubber to reduce selenium
- Investing $100M to ensure TVA meets or exceeds permit standards
Beneficial Reuse of Fly Ash

Every year 75% (300,000 tons) of fly ash is reused.

About 20,000 tons of ash went into the new Hankook Tire plant in Clarksville.

Cumberland Fossil Plant supplies over 200 concrete plants in the U.S.

In concrete, every ton of fly ash that replaces Portland cement reduces carbon emissions by 1 ton.
Cumberland Environmental Stewardship

Cumberland Fossil Plant construction began in 1968.
Cumberland Environmental Stewardship

Ash Disposal Area complete and sluicing began

1972
Cumberland Environmental Stewardship

- Scrubbers installed
- Dry Fly Ash silos installed
- Gypsum production began

1995-1996
Cumberland Environmental Stewardship

TDEC Solid Waste Permit operational:
- Landfills constructed
- Dry Fly Ash placement began

1996
Cumberland Environmental Stewardship

24/7 Operation of gypsum dewatering plant
Gypsum flow diverted to dewatering plant
Dry stacking gypsum began

2009
Bottom Ash Dewatering and gypsum wastewater treatment systems construction started.

Target completion for dry handling conversion 2020.
Cumberland Environmental Stewardship

Temporary lined basin installed
Cumberland Environmental Stewardship

Lined Basins

Planned Start of repurposing the Main Ash Pond to lined basins
Cumberland Environmental Stewardship

Planned completion of Corrective Action/Risk Assessment (CARA) Plan
Reservoir Health and Water Supply

- **Water Quality Supports**
  - TDEC-Designated Uses for:
    - Water Supply
    - Fish & Aquatic Life
    - Recreation
    - Livestock Watering & Wildlife
    - Irrigation
    - Navigation

- **Long-term Monitoring Program**
  - Began monitoring in 1991
  - Fish and benthic communities healthy
For More Information

Cumberland Fossil Plant
https://www.tva.gov/Energy/Our-Power-System/Coal/Cumberland-Fossil-Plant

Air Quality – Water Quality – Ash Storage
https://www.tva.com/Environment/Environmental-Stewardship

TDEC Order
https://www.tva.com/tdec

Groundwater Monitoring
www.tva.com/ccr
Environmental Investigation

- Groundwater Study
  - Over 30 Wells
- Geology
- Residential Wells
- Coal Ash & Soils
- Cumberland River/Wells Creek
  - Sediment
  - Water
  - Aquatic Life
- Structural Integrity
Groundwater

- No offsite groundwater impacts
- Collecting additional data for State and Federal programs to evaluate corrective actions
## Slope Stability

<table>
<thead>
<tr>
<th>CCR Unit</th>
<th>Normal</th>
<th>Earthquake</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom Ash Pond</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Stilling Pond (including Retention Pond)</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Dry Ash Stack</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Gypsum Storage Area</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

### Factor of Safety: 1.98

- **Wells Creek**
  - Normal Pool Elevation 359.0 ft
- **Bedrock**
- **Alluvial Granular**
- **Alluvial Clay**
- **Dike 1 (Lean Clay)**
- **Dike 2 (Fat Clay)**
- **STN - 49**
- **STN - 50**

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