SWEPCO Flint Creek Plant
ELG Discussion with ADEQ

Arkansas DEQ Central Office
April 10, 2017
Purpose

• Outline Approach to ELG Compliance for Flint Creek Plant
  ◦ Technology to be used for various waste streams
  ◦ Establishment of applicability date based on schedule and justification
Flint Creek Plant

- Gentry, Arkansas
- Southwestern Electric Power Company & Arkansas Electric Cooperative Corp. *(SWEPCO & AECC)*
- Coal
- 516 MW
- Unit 1 in service 1978
Effluent Limitations Guidelines (ELGs)

- National wastewater treatment standards for the steam electric industry (primarily engaged in the generation of electricity for distribution and sale)

- Limits set that reflect pollutant reductions achievable with available technologies.

- Last updated 1982.

- Final rule published: November 3, 2015 (80 FR 67838)

- Effective date: January 4, 2016

- Implemented through NPDES permits.
# New Technology Requirements

<table>
<thead>
<tr>
<th>Waste Stream</th>
<th>Technology Basis for the Effluent Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGD Wastewater</td>
<td>Chemical precipitation and biological treatment</td>
</tr>
<tr>
<td>Fly Ash Transport Water</td>
<td>Dry handling</td>
</tr>
<tr>
<td>Bottom Ash Transport Water</td>
<td>Dry handling/Closed loop</td>
</tr>
<tr>
<td>Flue Gas Mercury Control Wastewater</td>
<td>Dry handling</td>
</tr>
<tr>
<td>Gasification Wastewater (IGCC)</td>
<td>Evaporation</td>
</tr>
<tr>
<td>Combustion Residual Leachate</td>
<td>Impoundment</td>
</tr>
</tbody>
</table>
# New Technology Requirements

<table>
<thead>
<tr>
<th>Waste Stream</th>
<th>Technology Basis for the Effluent Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGD Wastewater</td>
<td>Chemical precipitation and biological treatment</td>
</tr>
<tr>
<td>Fly Ash Transport Water</td>
<td>Dry handling</td>
</tr>
<tr>
<td>Bottom Ash Transport Water</td>
<td>Dry handling/Closed loop</td>
</tr>
<tr>
<td>Flue Gas Mercury Control Wastewater</td>
<td>Dry handling</td>
</tr>
<tr>
<td>Gasification Wastewater (IGCC)</td>
<td>Evaporation</td>
</tr>
<tr>
<td>Combustion Residual Leachate</td>
<td>Impoundment</td>
</tr>
</tbody>
</table>
# New Limits for Flint Creek Plant

## New BAT Limits

<table>
<thead>
<tr>
<th>Waste Type</th>
<th>Limit Descriptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bottom ash transport water</td>
<td>No discharge*</td>
</tr>
<tr>
<td>Combustion Residual Leachate (formerly “low volume waste”)</td>
<td>TSS - 100 mg/L (daily max.) 30 mg/L (monthly avg.)</td>
</tr>
<tr>
<td></td>
<td>Oil &amp; Grease - 20 mg/L (daily max.) 15 mg/L (monthly avg.)</td>
</tr>
</tbody>
</table>

* Technology expectation either dry handling or closed-loop wet transport with no blowdown/discharge.

# No change. EPA simply made a separate category. Based on settling pond technology.
Implementation and Compliance

- Implemented by States through NPDES permits. It is not necessary to “re-open” the permit.

- Limits apply “as soon as possible” beginning November 1, 2018, but no later than December 31, 2023.

- Applicability date can be set beyond permit expiration date, but no later than December 31, 2023.

- Even if model BAT technology is in place, new limits do not apply until after November 1, 2018.
Implementation and Compliance (cont.)

- Permit fact sheet is to include well-documented, facility specific, justification for how the applicability date was determined.

- Assuming information provided, States to account for:
  - CCR, CPP program requirements and deadlines.
  - Time needed to fund, design, procure and install technologies.
  - FGD wastewater treatment optimization period.
  - “Other factors as appropriate.”

  (80 FR 67883)
Implementation and Compliance (cont.)

- Time needed to fund, design, procure and install technologies:
  - Multiple versus single unit facilities.
  - Preliminary engineering; technology selection; conceptual design; detailed engineering.
  - Water balance development; waste stream sampling and characterization; flow measurements.
  - Pilot studies.
  - Reliability issues (scheduled outages).
  - Procurement; construction; testing; optimization.

- Other factors as appropriate:
  - NPDES permit renewal application preparation.
  - Timing and progress of 316(b) compliance.
  - Effect on WQBEL compliance.
Flint Creek Bottom Ash Conversion

- Under-boiler Dewatering Conveyor
  - Lowest horsepower
  - Eliminates ash handling pumps and piping
  - Replaces old ash hopper
  - System at other AEP facilities
  - 8 to 10 week outage required to install
Under Boiler Dewatering Conveyor
UCC Submerged Flight Conveyor
Under Boiler Dewatering Conveyor
Oklaunion Plant
Under Boiler Dewatering Conveyor
Oklaunion Plant
Flint Creek Bottom Ash Conversion

- **Dry Ash Conveyor**
  - Removes water from system
  - Heat rate improvement
  - Replaces old ash hopper
  - Eliminates ash handling pumps
  - 8 to 10 week outage required to install
Dry Bottom Ash Conveyor
Dry Bottom Ash System
Operation of the UCC PAX
Dry Bottom Ash Conveyor
Miscellaneous Wastewater Streams

- NPDES Permits
  - Water balance will be changing.
    - How do we address in middle of permit cycle?
  - Potential for compliance schedule for water quality-based effluent limitations.

- CCR Impacts
  - Currently evaluating compliance with CCR rule.
  - Assuming that rule will be revised to allow compliance extension for non-CCR waste waters.
Flint Creek Schedule

- Requesting December 31, 2021 Applicability Date for technology installation based on schedule dated April 7, 2017.

- Schedule and justification will be submitted with NPDES renewal application.

- Subject to change due to ongoing litigation and potential changes to CCR and ELG rules.

- Assumes ability to use CCR ponds for non-CCR waste waters.
Flint Creek ELG Program Schedule

<table>
<thead>
<tr>
<th>Month</th>
<th>12 months</th>
<th>Technical Studies/ Water Modeling</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 months</td>
<td>Conceptual Engineering</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>Preliminary Engineering</td>
</tr>
<tr>
<td></td>
<td>18 months</td>
<td>Detailed Engineering</td>
</tr>
<tr>
<td></td>
<td>18 months</td>
<td>Permitting</td>
</tr>
<tr>
<td></td>
<td>18 months</td>
<td>Construction</td>
</tr>
<tr>
<td></td>
<td>6 months</td>
<td>Start Up &amp; Commissioning</td>
</tr>
</tbody>
</table>