Sarah Seitz
Colstrip Environmental Project Officer
Waste Management & Remediation Division
Agenda

• Introductions
• Background/AOC Overview
• Update on Progress
  • Plant Site
  • Units 1&2 Remedy
  • Units 3&4 Remedy
  • Presentation by Talen MT
    • Dry Disposal
    • Wastewater Treatment Upgrades
• Water Feasibility Study
• Units 1&2 Ponds Settlement Agreement Discussion
• What’s Next & Public Participation in Future
• Questions/Comments
INTRODUCTIONS

• Sarah Seitz – Colstrip SES Environmental Project Officer, sarah.seitz@mt.gov
• Katie Morris – Cleanup, Protection & Redevelopment Section Supervisor katie.morris@mt.gov
• Kevin Stone – DEQ/Project Public Information Officer, kevin.stone@mt.gov
What is Coal Ash?

- Coal Ash = Coal Combustion Residual (CCR)
  - Byproduct of burned coal
  - May contain traces of contaminants, typically metals naturally present in the coal
  - Regulated by Federal CCR Rule

Fly ash (magnified 2000x)

Bottom ash (magnified 6000x)
Constituents of Concern or Interest (COCs or COIs)

- Colstrip Coal Ash – AOC/CCR Rule
  - CCR Appendix III:
    - Boron, Sulfate
  - CCR Appendix IV:
    - Cobalt, Lithium, Selenium, Molybdenum (Plant Site)
- Other Potential Constituents (COIs):
  - Manganese
Administrative Order on Consent (AOC)

- Addresses groundwater contamination from coal ash disposal ponds
- Divides site into 3 areas:
  - Plant Site
  - Units 1&2 Evaporation Ponds
  - Units 3&4 Effluent Holding Ponds
AOC Process

Site Characterization Report (describes the current condition of each area)

Cleanup Criteria & Risk Assessment Report (identifies constituents of interest, risk for exposure to contaminants, and cleanup criteria for contaminants)

Remedy Evaluation Report (evaluates remediation alternatives)

DEQ selects remedy
DEQ selects remedy

Remedial Design/Remedial Action Work Plan (implementing selected remedy)

Final Remedial Action Report (describes completed remedy)

Facility Closure Plan (long-term maintenance and monitoring)
# AOC Status

<table>
<thead>
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- ✓ = Approved by DEQ
- ✓ = Under review/Conditional
- -- = Not yet submitted
AOC Financial Assurance

<table>
<thead>
<tr>
<th>Colstrip Owners</th>
<th>Financial Assurance (FA) Provided as of 12/01/2020(^1)</th>
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<tr>
<td>Talen(^2)</td>
<td>$58.7 million</td>
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<tr>
<td>Puget Sound Energy(^2)</td>
<td>$71.7 million</td>
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<tr>
<td>Northwestern Energy</td>
<td>$19.5 million</td>
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<td>Portland General Electric</td>
<td>$26.0 million</td>
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<tr>
<td>Avista</td>
<td>$19.5 million</td>
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<td>PacifiCorp</td>
<td>$13.0 million</td>
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<tr>
<td>Total</td>
<td>$208.3 million</td>
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1: DEQ revisits and reviews FA annually
2: Includes $21.6M from Talen and $21.6M from Puget Sound toward Units 1&2 Remedy/Closure
Coal-Fired Generating Unit Remediation Act

- MCA §75-8-101 through 109 (2017 Legislative Session)
- Requires Colstrip owners to submit a remediation plan within 90 days of shutdown
- The purpose of this plan was to provide remediation information for items not covered under the AOC – primarily in operations areas
Coal-Fired Generating Unit Remediation Act

- Due to safety and other considerations related to operation of Units 3&4, demolition and removal will be deferred until after Units 3&4 are retired

- Periodic inspections

- Future use of land = industrial (primarily)

- Remediation measures will comply with 75-8-107, requiring contractors and subcontractors to use a skilled and trained workforce and pay the standard prevailing rate of wages.
Coal-Fired Generating Unit Remediation Act

Universal Wastes

- Consists of lamps/bulbs, mercury devices, batteries and electronic wastes
- Quantities have been identified and will be disposed of in accordance with ARM regulations
- Include table of quantities

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<tr>
<th>Material</th>
<th>Approximate Quantity</th>
<th>Units</th>
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<tr>
<td>Mercury Devices</td>
<td>80-130</td>
<td>each</td>
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<tr>
<td>Batteries</td>
<td>200-250</td>
<td>each</td>
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<tr>
<td>CFC</td>
<td>215</td>
<td>units</td>
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<tr>
<td>Light Bulbs and Ballast</td>
<td>throughout</td>
<td>each</td>
</tr>
<tr>
<td>Fire Extinguishers</td>
<td>34</td>
<td>each</td>
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<tr>
<td>E-Waste</td>
<td>200-250</td>
<td>each</td>
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</table>
Coal-Fired Generating Unit Remediation Act

Asbestos

<table>
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<tr>
<th>Material</th>
<th>Approximate Quantity</th>
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<tbody>
<tr>
<td>Flooring Paper</td>
<td>10</td>
<td>square feet</td>
</tr>
<tr>
<td>Coating Under Lab Sinks</td>
<td>20</td>
<td>square feet</td>
</tr>
<tr>
<td>Roof Flashing</td>
<td>300</td>
<td>square feet</td>
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<tr>
<td>Plaster</td>
<td>125</td>
<td>square feet</td>
</tr>
<tr>
<td>Floor Tile Mastic</td>
<td>432</td>
<td>square feet</td>
</tr>
<tr>
<td>Steam Drum Calk</td>
<td>68</td>
<td>linear feet</td>
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<tr>
<td>Boiler 2 Calk</td>
<td>74</td>
<td>linear feet</td>
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<tr>
<td>*Turbine Shell Interior Coating</td>
<td>8,500</td>
<td>square feet</td>
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<tr>
<td>*Spray on Cable Insulation</td>
<td>9,400</td>
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<tr>
<td>Spray on Electrical Cabinets</td>
<td>6,500</td>
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</tr>
<tr>
<td>*Lab Counter Tops</td>
<td>48</td>
<td>square feet</td>
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<tr>
<td>*Roofing Material</td>
<td>5,500</td>
<td>square feet</td>
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*indicated presumed asbestos containing materials (PACM)
Coal-Fired Generating Unit Remediation Act

Polychlorinated biphenyl (PCB) wastes
Regulated under the Toxic Substances Control Act (TSCA), with US EPA having regulatory authority

• Potential materials at Colstrip include fluorescent lighting ballasts and high intensity discharge fixtures, small transformers, capacitators and ballasts, oil, and building materials such as caulk, glazing and paint

• Potential PCB materials will be sampled and properly disposed of if determined to contain PCBs
Coal-Fired Generating Unit Remediation Act

Other Regulated Material, Including Hazardous Material

- Includes lubricating oils, hydraulic oils, non-PCB transformer oils, fuel and waste oil, fire extinguishers, refrigerants, and devices containing small amounts of nuclear materials (e.g., exit signs, smoke detectors, coal handling density gauges).

- Initial site reconnaissance identified products containing hazardous substances; these will be tracked and disposed of per applicable waste regulation.
Coal-Fired Generating Unit Remediation Act

Petroleum Releases: Two known petroleum release sites in the Units 1&2 area:

- RELEASE #332
- RELEASE #562
AOC Remedy Progress

- Plant Site
  - Remedial Design/Remedial Action Work Plan – moving toward full design
  - Annual Performance Evaluation for Plant Site Remedy – Plant Site Flushing/Capture System
- Units 1&2 SOEP/STEP
  - Alternative 10 Selected (Talen invoked dispute resolution)
  - Settlement Agreement Oct 2021
- Units 3&4
  - Cleanup Criteria/Risk Assessment – Approved in Jan 2020
  - Finalize Remedy Evaluation – 2021 – Conditional Approval
  - Incorporate additional elements into Remedial Design/Remedial Action Work Plan
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**Annual Progress Report (>1yr remedy)**
Plant Site

- Remedy addresses groundwater contamination from coal ash process/disposal ponds

- 2021 Activities
  - Biannual groundwater monitoring
  - Operation of flushing/capture system
  - Groundwater Capture Pond
  - Annual Flushing/Capture system report in review
Units 1&2 Coal Ash Ponds

- Remedy selected addresses groundwater contamination from coal ash process/disposal ponds – Alternative 10
- 2021 Activities
  - Biannual groundwater monitoring
  - Remedy selected
    - Settlement Agreement
  - Remedy Design starting
    - Flushing/Capture Pilot Test
Units 3&4 Coal Ash Ponds

• Remedy selected – Conditional Approval
  • Cell Upgrades & Closures
  • Flushing Capture
• 2021 Activities
  • Continued monitoring – groundwater
  • RER and RD/RA Work Plan
• Remedy Design cont.
  • Flushing/Capture Pilot Test
  • MNA
  • Dry disposal installation
HORIZONTAL INJECTION WELL – FLUSHING PILOT TEST

INSTALLATION OF DRY DISPOSAL SYSTEM
Montana DEQ’s mission is to champion a healthy environment for a thriving Montana.
Colstrip 3&4 Dry Disposal Project

- Dry Disposal System - $38 million
  - In combination with the existing Paste Plant, dewatered scrubber slurry (ash & calcium sulfate), utilizing pressure filtration, to provide a dry disposal process
  - Helps prevent potential seepage and provides additional protection to groundwater

- Construction started in Fall 2020

- Construction scheduled for completion May 1, 2022

- Startup and tuning scheduled from 5/1/22 – 7/1/22

- Full operation scheduled for 7/1/22
Colstrip 3&4 Dry Disposal Project
Colstrip 3&4 Dry Disposal Project
Colstrip Wastewater AOC GWCTS

- Groundwater Capture Treatment System (GWCTS)
  - Recovery system to treat captured groundwater
  - Falling Film Evaporator technology including a low temperature, vacuum crystallization process
  - $35 million

- Construction started in 2020

- Construction scheduled for completion Spring 2022

- Startup and tuning scheduled from 5/1/22 – 8/1/22

- Full operation scheduled for 8/1/22
Groundwater Capture Treatment System
Groundwater Capture Treatment System
Groundwater Capture Treatment System
Water Feasibility Study – SB87

- 2021 Legislative Action to modify MCA – Coal-Fired Generating Unit Remediation Act
- Requires water feasibility study to be completed by operator by Nov. 1, 2022 to evaluate water resources and costs associated with those resources for local government (City of Colstrip)
Units 1&2 Coal Ash Ponds
Settlement Agreement

- Phase I: Understanding the issues Talen had with DEQ’s decision
- Phase II: Agreement in Principle
- Phase III: Settlement Agreement Reached – October 18, 2021
Units 1&2 Coal Ash Ponds

Settlement Agreement

• DEQ Retain Alternative 10
• Deadlines for deliverables
• RD/RA Work Plan Proposal
  • Jan. 31, 2022
• RD/RA Work Plan
  • 18-months after signature
• Landfill Application Information
  • 2 years after signature
• Stipulated Penalties

DEQ MONTANA
Units 1&2 Coal Ash Ponds
Settlement Agreement

- Alternative 10 Remedy
  - Financial Assurance
  - $163,324,678.99
- Request to Amend
  - Single Alternative 11A
  - At end of 2 years if choose to submit Request to Amend must include RD/RA Work Plan
- Public Comment Period after preliminary decision
Montana DEQ’s mission is to champion a healthy environment for a thriving Montana.

- Next Steps and Public Participation
- Questions/Comments
References

DEQ Colstrip Coal Ash Pond Cleanup Website: https://deq.mt.gov/cleanupandrec/Programs/colstrip

MCA Title 75 Chpt 8 – Coal Fired Generating Unit Remediation Act: https://leg.mt.gov/bills/mca/title_0750/chapter_0080/part_0010/sections_index.html

Talen CCR Rule Website: https://www.talenenergy.com/ccc-colstrip/