

# Colstrip Administrative Order on Consent Status Update and Annual Meeting

August 14<sup>th</sup>, 2019

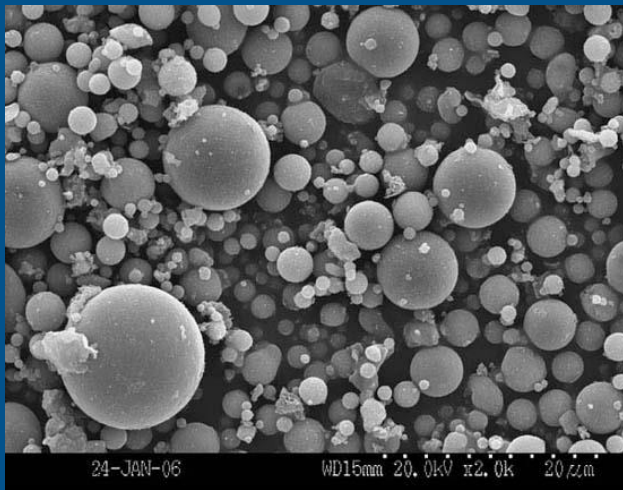


# Agenda

- Background/AOC Overview
- AOC Status Update:
  - Completed Reports
  - Reports Under Revision
- Units 3&4 Cleanup Criteria/Risk Assessment Overview
- Units 3&4 Remedy Evaluation Report Overview
- Units 1&2 Remedy Evaluation Report Update
- Financial Assurance Update
- What's Next?

# What is coal ash?

- Coal Combustion Residual (CCR); byproduct of burned coal
- May contain traces of metals naturally present in the coal
- Regulated by Federal CCR Rule



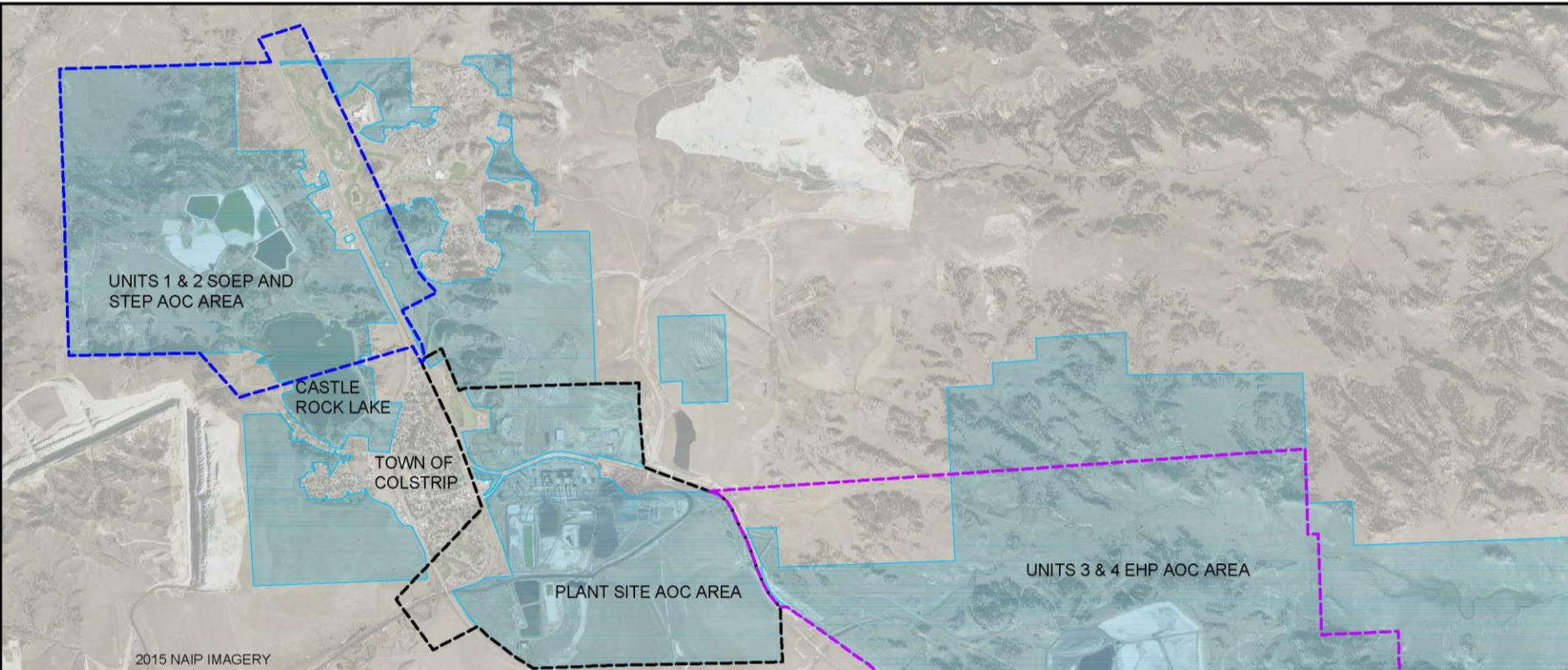
Fly ash (magnified 2000x)



Bottom ash (magnified 6000x)

# 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



2015 NAIP IMAGERY



**SCALE**  
(In Feet) 0 3,000

**LEGEND**

- PROPERTY BOUNDARY
- UNITS 1 & 2 SOEP AND STEP AOC AREA
- PLANT SITE AOC AREA
- UNITS 3 & 4 EHP AOC AREA

Revised May 8, 2017

**COLSTRIP WASTEWATER AOC AREAS**

FIGURE

UPDATE TIME: 8:50 AM  
JBERGIN\BIL\20170508\F\LAND PROJECTS\TALEN\1207116\12071168006.DWG

# 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

# AOC Process (continued)

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 Report Status

Report Name	Plant Site	Units 1&2	Units 3&4
Site Characterization Report	✓	✓	✓
Background Screening Level Report	✓	✓	✓
Cleanup Criteria & Risk Assessment Report	✓	✓	✓
Remedy Evaluation Report	✓	✓	✓
Remedial Design/Remedial Action Report	✓	--	--
Final Remedial Action Report	--	--	--
Closure Plans	✓	✓	✓

✓ = Approved by DEQ

✓ = Under revision by Talen

-- = Not yet submitted



# Units 3&4 Cleanup Criteria/Risk Assessment Overview

- Surface water cleanup criteria for ecological risk is being refined
- Anticipate that the next version of the report will go out for public comment



Lining F Cell, Units 3&4 Area, 2005

# Constituents of Interest

- Boron
- Sulfate
- Cobalt
- Lithium
- Selenium
- Manganese
- Thallium (potential – more data needed)
- Radium (potential – more data needed)





# Units 3&4 Remedy Evaluation Overview

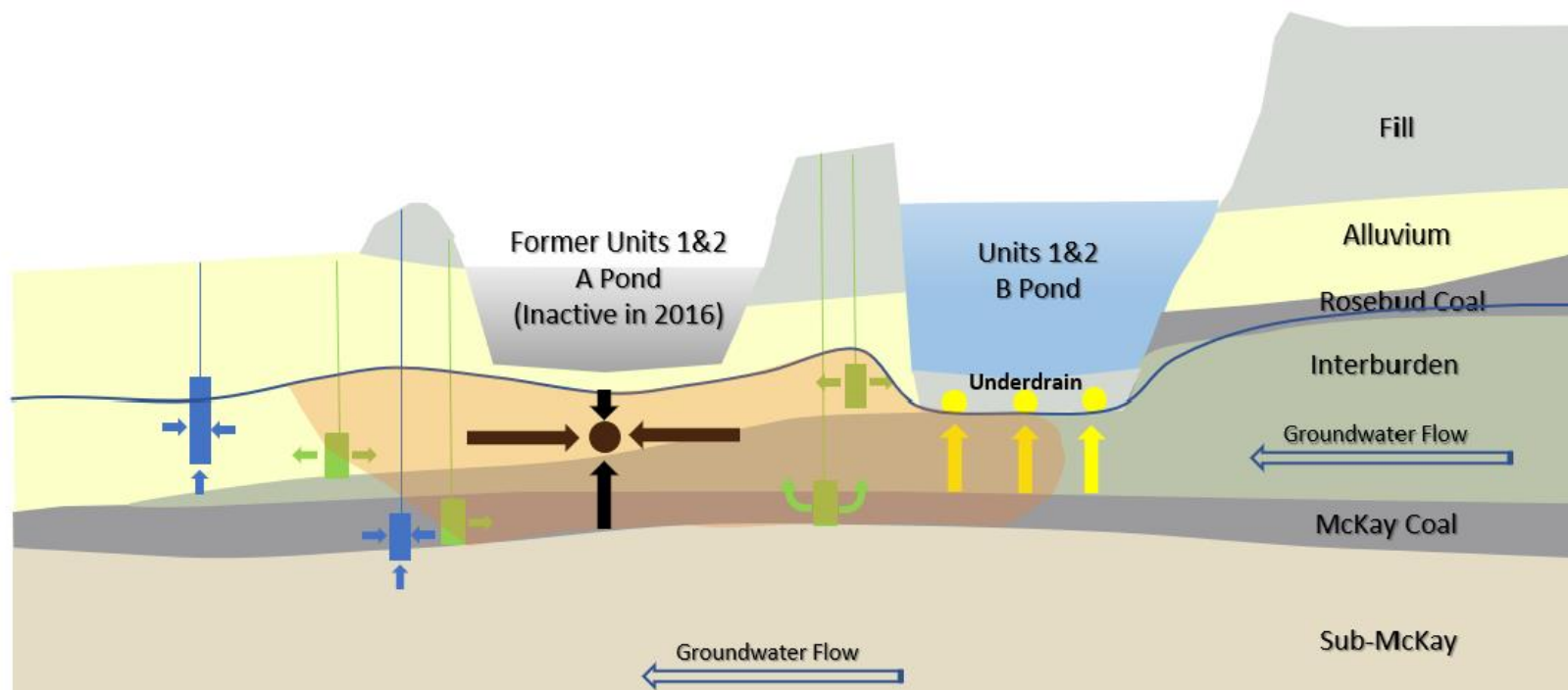
- Talen is proposing an injection/capture well system, pond closures, monitored natural attenuation and contingent Permeable Reactive Barriers



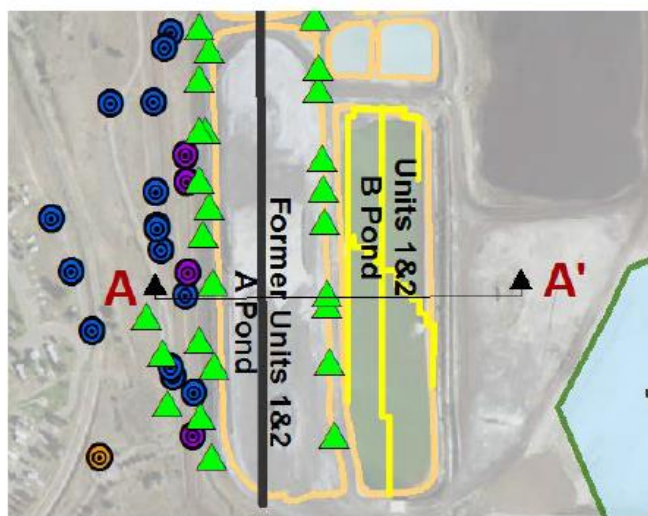
- DEQ requested additional modeling to determine if the 3&4 area would benefit from enhancing these technologies
- 3&4 Ponds will have adequate separation from groundwater once dewatered

A  
West

A'  
East



Arrows represent groundwater flow for Alternative 4 based on the fate and transport model (NewFields, 2017)



- Vertical Capture Well
- Vertical Injection Well
- Horizontal Capture Well
- Groundwater with Boron above the Proposed Cleanup Criteria

- ▲ Vertical Injection Well
- Vertical Capture Well Conversion to Injection Well
- Vertical Capture Well with Increased Pumping Rates
- Vertical Capture Well with No Changes in Pumping Rates
- Horizontal Extraction Well

Not Scaled

**Cross Section Showing Conceptual Injection and Capture Systems Beneath Former Units 1 & 2 A Pond**  
 Talen Montana  
 Colstrip, Montana

**Geosyntec**  
consultants

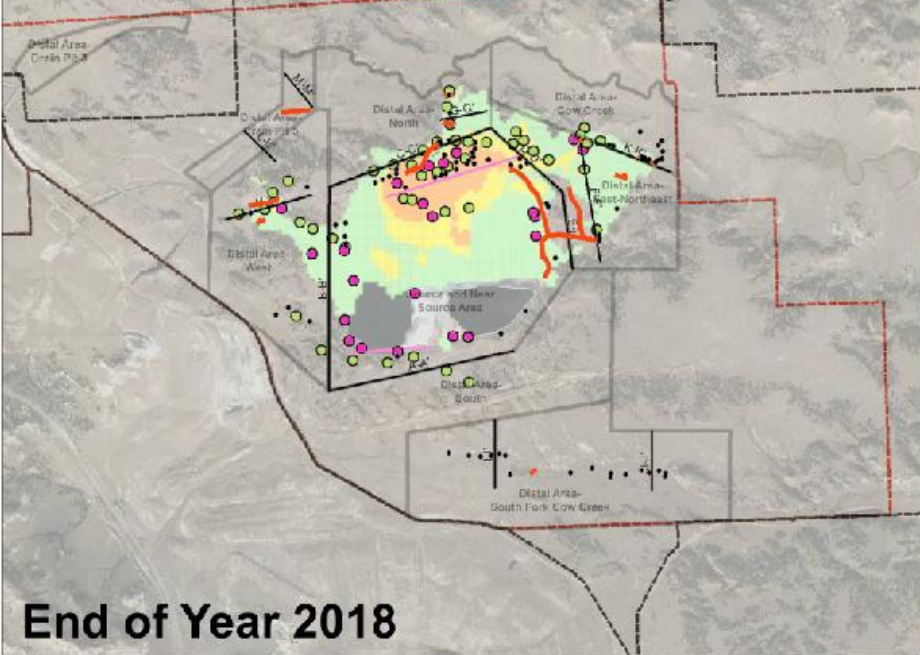
Columbia, Maryland

June 2018

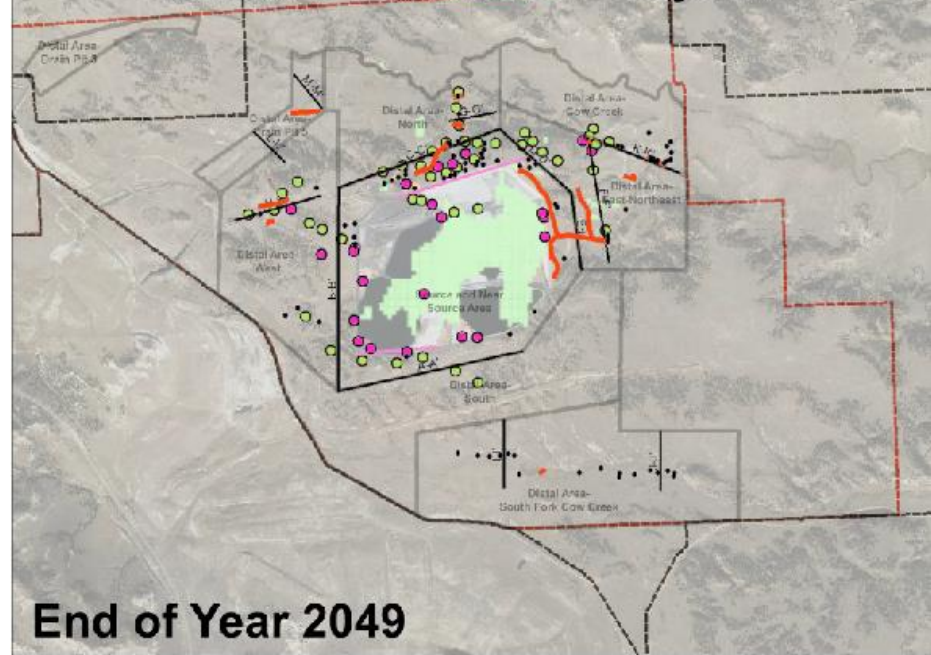
**Figure**

**ES-1**

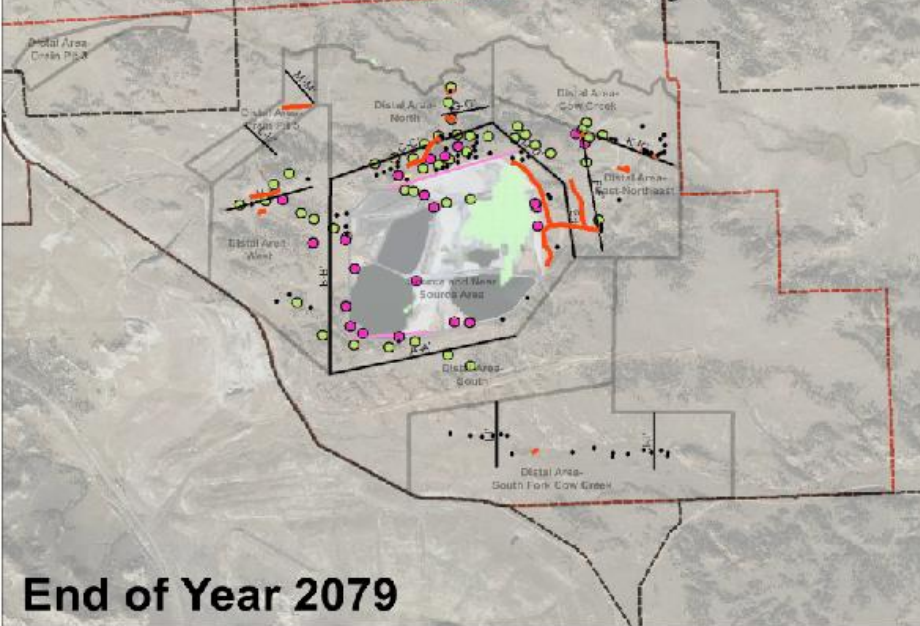
### Sulfate Alternative 4 - Layer 5



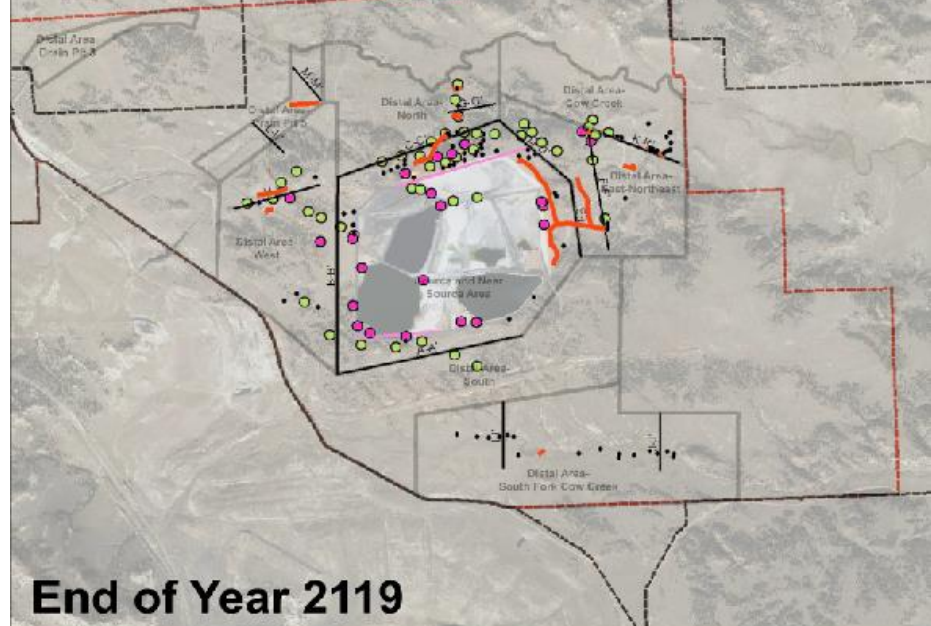
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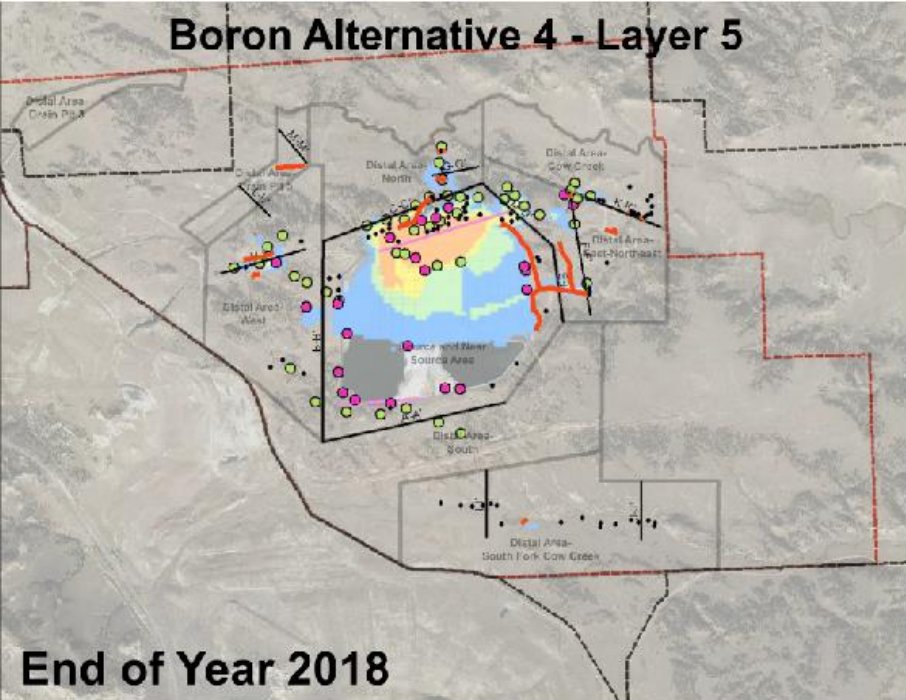
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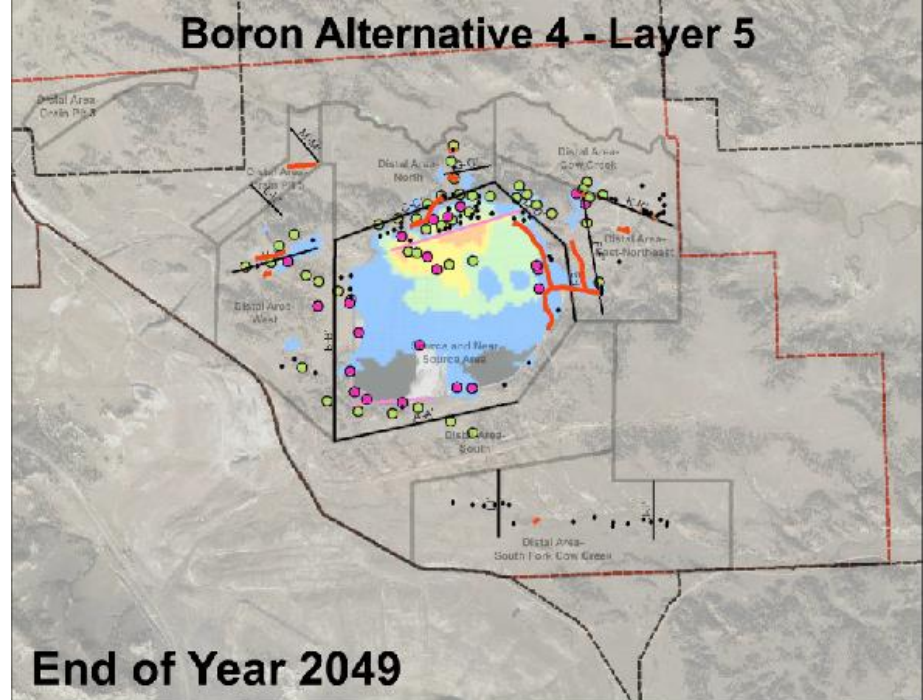
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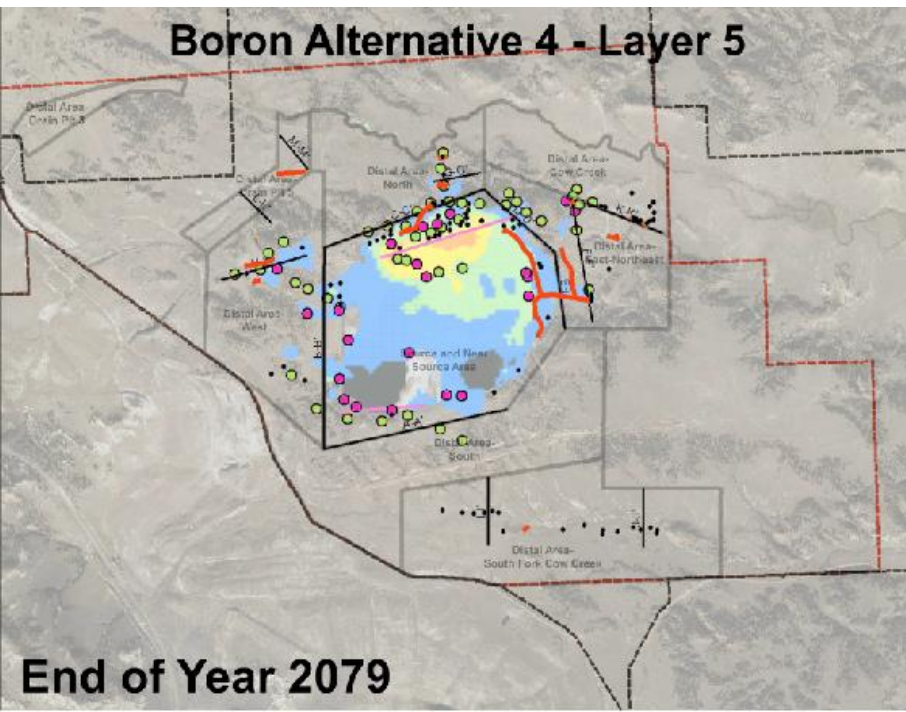
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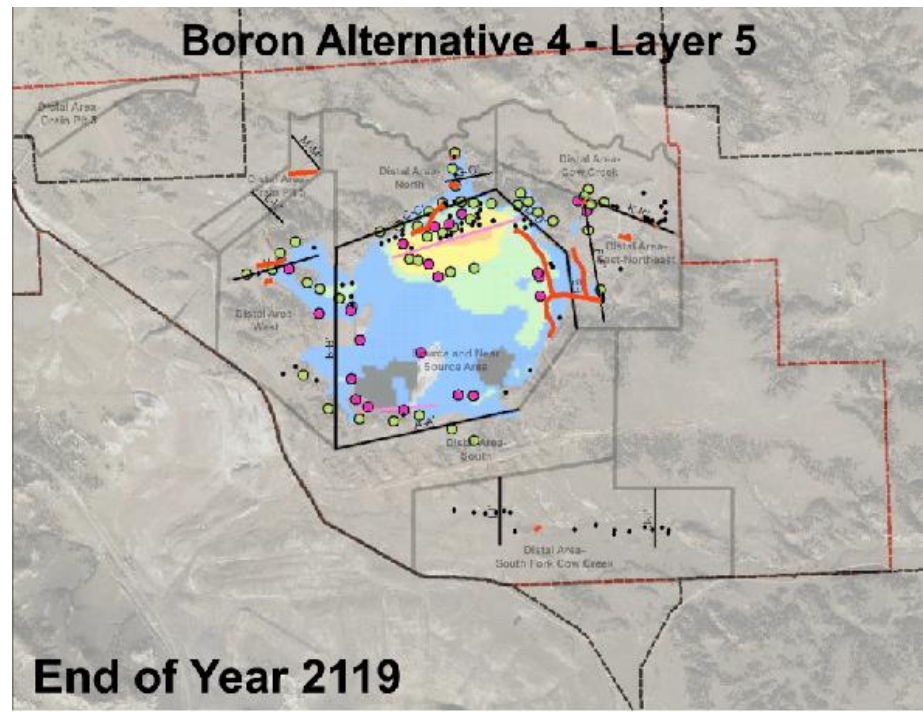
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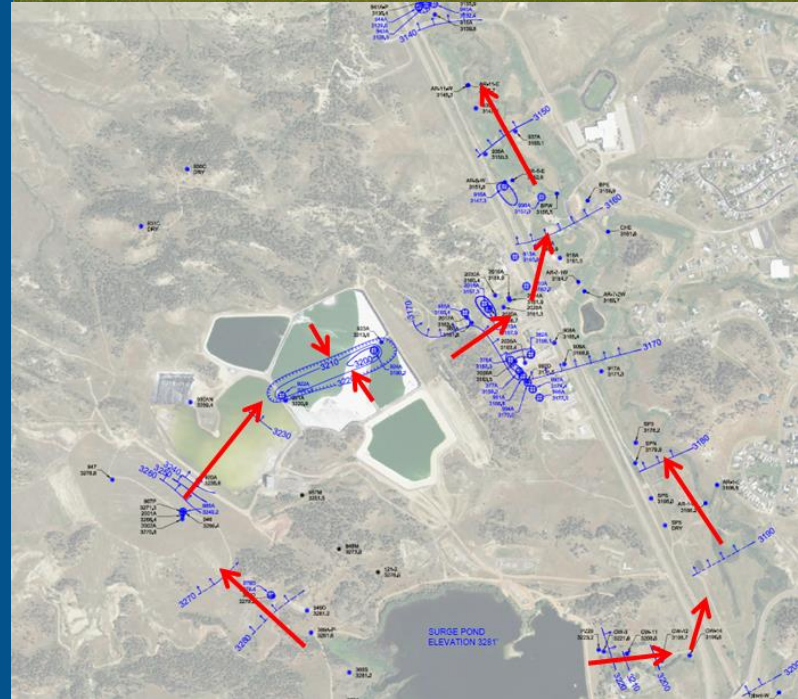
# Units 1&2 Remedy Evaluation Report Update

- DEQ did not approve the revised report submitted by Talen in January 2019
- Talen and DEQ agreed to split the remedy into two parts:
  - Part I: Will address remedies for the existing groundwater impacts
  - Part II: Will address source control for the Stage I Pond



# Units 1&2 Remedy Evaluation Report: Part II Overview

- Potential source control options for the Stage I Pond:
  - Alternative 5: Additional data collection with no further action
  - Alternative 6A: Replacing existing cap with a geomembrane cap
  - Alternative 6B: Replacing existing cap, plus In-Situ Stabilization
  - Alternative 6C: Replacing existing cap, plus installation of groundwater drains
  - Alternative 7: Excavation of Stage I Pond



# Financial Assurance Status

- Three phases of financial assurance
  - Phase I (current operations)
  - Phase II (remedial costs for each of the three areas)
  - Phase III (closure costs for each of the three areas)
- Talen has submitted Phase I, Phase II for the Plant Site Area, and Phase III for all three areas
- Total of \$154 million

# What's Next?

Report Name	Next Submission
Units 3&4 Remedy Evaluation Report	August 30 <sup>th</sup> , 2019
Units 3&4 Cleanup Criteria & Risk Assessment Report	August 29 <sup>th</sup> , 2019
Plant Site Remedial Design/Remedial Action Report	August 26 <sup>th</sup> , 2019
Units 1&2 Remedy Evaluation Report, Part I	October 1, 2019
Units 1&2 Remedy Evaluation Report, Part II	April 2020

# Upcoming Public Comment Periods

- AOC requires a 30-day public comment period on reports
- Meetings for specific reports are held upon request
- Upcoming public comment periods can be expected for the following reports:
  - Units 3&4 Cleanup Criteria/Risk Assessment Report
  - Plant Site Remedial Design Report (30% Design)
  - Units 3&4 Remedy Evaluation Report

# Questions?

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<http://deq.mt.gov/DEQAdmin/mfs/ColstripSteamElectricStation>