

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

**Belt Mine Water Treatment Project
Water Pollution Control Advisory Council
September 11, 2015**

**Tom Henderson
DEQ Abandoned Mine Lands Program**

Presentation Outline

- Problem Overview
- Mitigation Alternatives
- Status and Funding
- Questions

Belt Creek at Belt Bridge

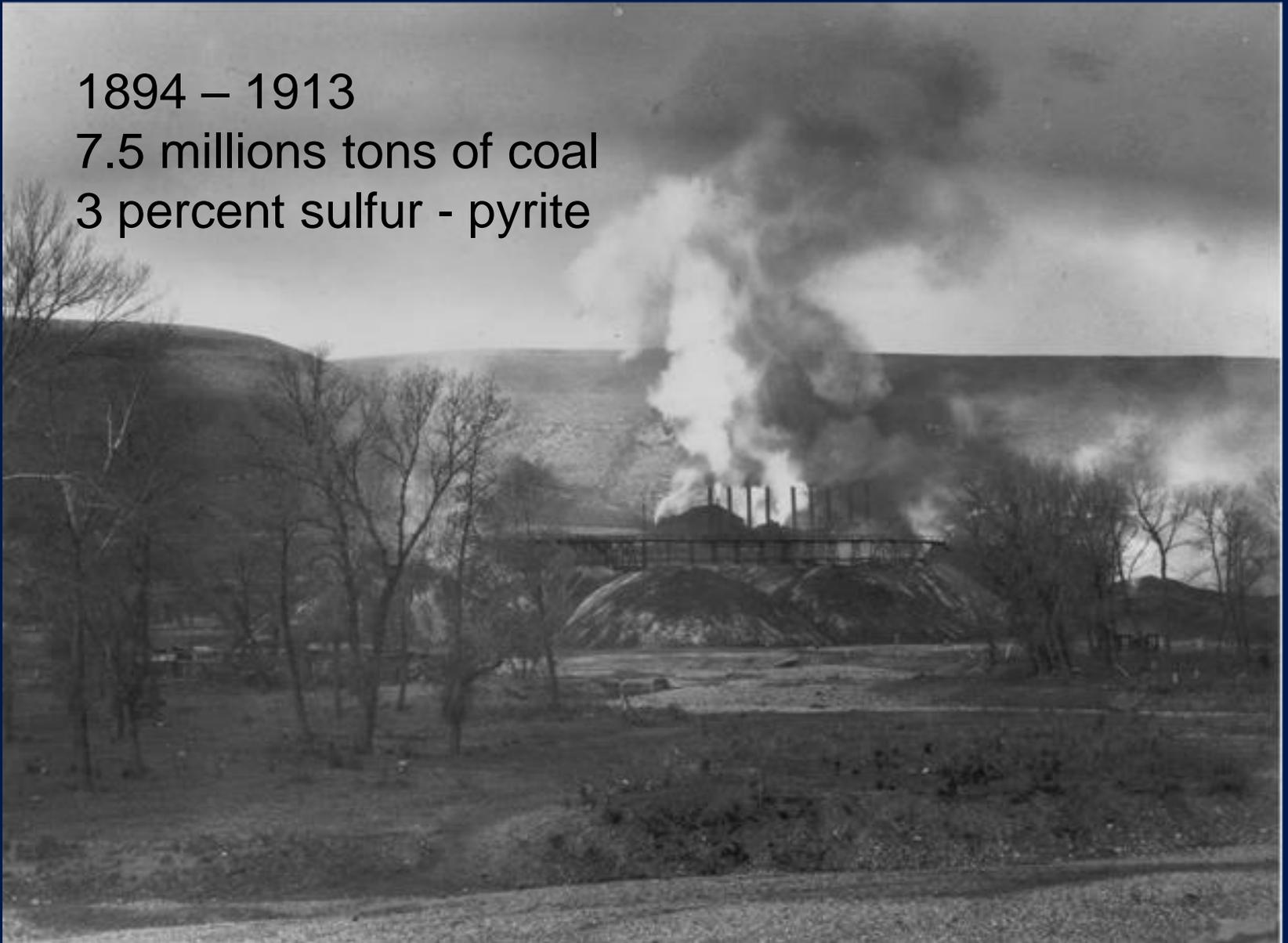


Historical Coal Mining and Coking

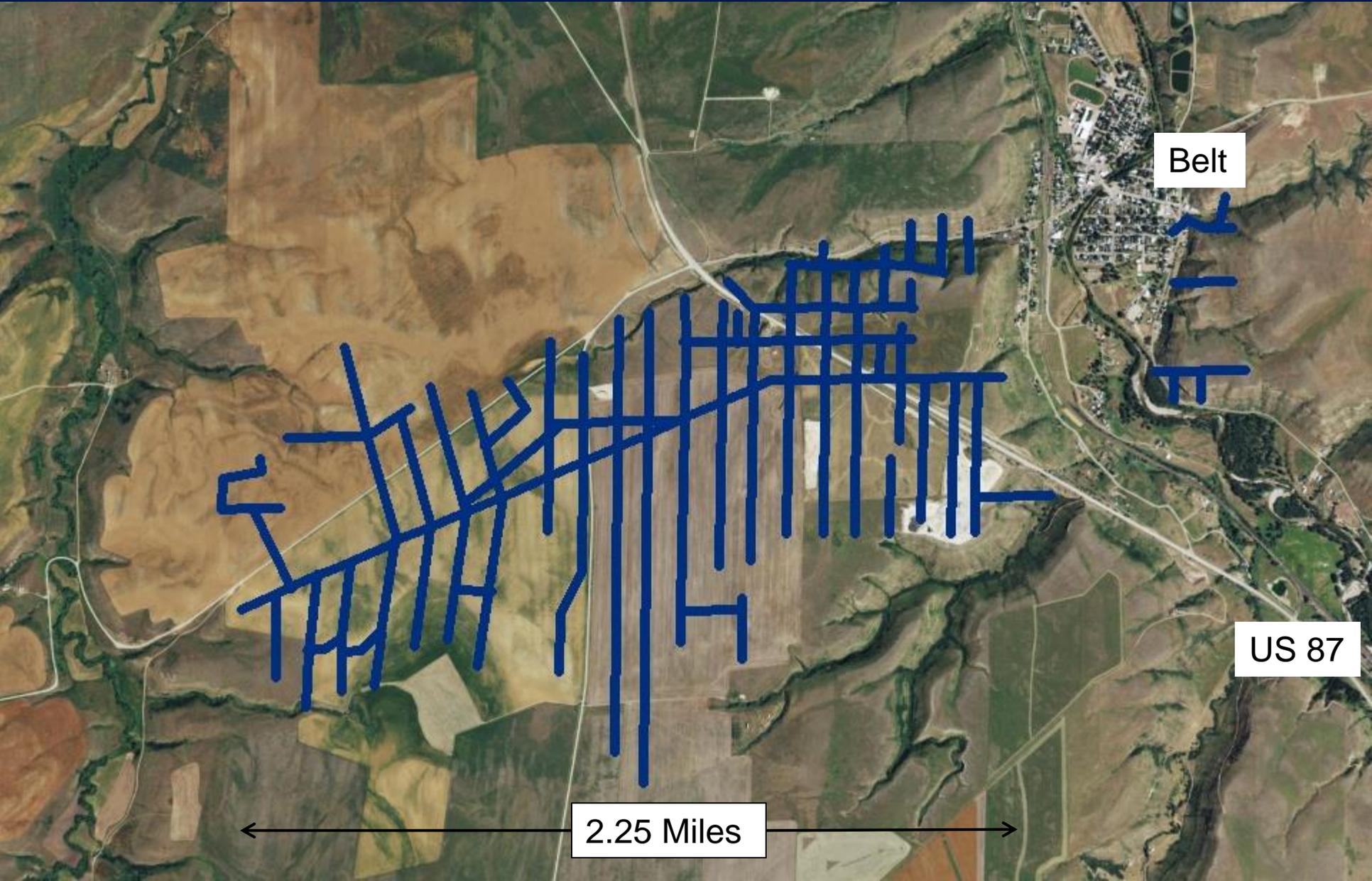
1894 – 1913

7.5 millions tons of coal

3 percent sulfur - pyrite



Anaconda Belt Mine Workings



Belt

US 87

2.25 Miles

Acid Mine Drainage – Anaconda Belt Mine



AMD Discharges – East Side of Belt Creek



Lewis Coulee



Castner Park

Acid Mine Drainage

- Approximately 150 gallons per minute discharge to Belt Creek
- Over six million gallons in a month (20 acre-feet)
- Exceeds DEQ water quality standards for metals:
 - Arsenic
 - Cadmium
 - Iron
 - Thallium
 - Beryllium
 - Chromium
 - Nickel
 - Zinc

Impacts to Belt Creek

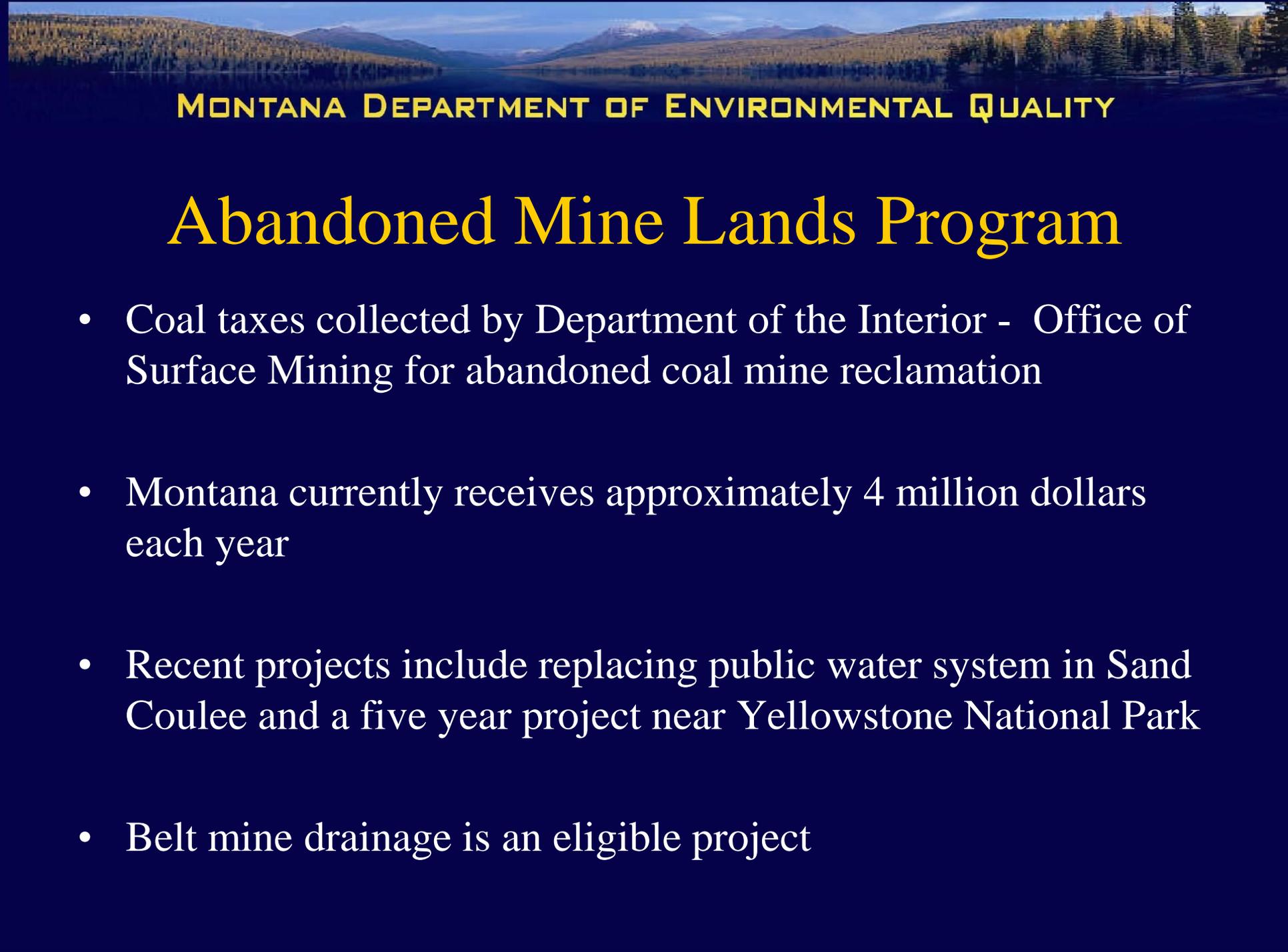
- Belt Creek immediately upstream of coal mines meets all DEQ water quality standards
- Contamination is most severe during fall, winter and early spring
- Iron and aluminum exceed water quality standards in Belt Creek during seasonal low flow
- Approximately 11 tons of iron and 7 tons of aluminum are discharged to Belt Creek each month



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Belt Creek Total Maximum Daily Loads (TMDL)

- A water quality plan and associated TMDLs were developed for Upper and Lower Belt Creek watersheds in 2011.
- Water quality problems linked to elevated metals and the need for further remediation from abandoned mines.
- EPA-led work is being conducted to address abandoned metal mines surrounding Neihart in Upper Belt Creek
- Lower Belt Creek is contaminated by abandoned coal mines



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Abandoned Mine Lands Program

- Coal taxes collected by Department of the Interior - Office of Surface Mining for abandoned coal mine reclamation
- Montana currently receives approximately 4 million dollars each year
- Recent projects include replacing public water system in Sand Coulee and a five year project near Yellowstone National Park
- Belt mine drainage is an eligible project

Mitigation Alternatives

- Source control: bulkheads to reduce flow, cropping to reduce water infiltration
- Low intensity treatment with long term maintenance
- Active chemical treatment with long term operations and maintenance

Bulkhead Investigation



Former Wetland Treatment



Preferred Mitigation Alternative

- Active treatment appears to be the best alternative to mitigate the Belt mine water
- Bench-scale testing indicate conventional lime neutralization was effective in treating the mine water
- Actively consulting with federal and state programs in Pennsylvania
- Approximately 350 active treatment plants operate in PA

Recent Timeline

- 2010 : Creation of DEQ water treatment account
- 2011-2012: Water Treatment Assessment
- 2013: Coke Oven Flats Investigation
- 2014-2015 Engineering Evaluation/Cost Analysis

Funding

- Current estimate for active treatment of mine discharges in Belt is 20 - 24 million dollars
- Includes plant construction and annual operations and maintenance for 100 years
- Approximately 15 million dollar balance in DEQ water treatment account
- DNRC Resource Damages Grant for \$500,000 is anticipated in the upcoming months.

Upcoming Work

- Complete the final draft Engineering Evaluation/Cost Analysis
- Release for public comment and finalize with preferred treatment alternative
- Continue property acquisition work in Coke Oven Flats

Additional Information

- DEQ Internet Page
<http://deq.mt.gov/AbandonedMines/CurrentProjects.mcpX>
- Belt
 - Investigation Reports
 - 2013 Public Meeting Presentation
- Great Falls Coal Field
 - Historical Overview
 - Water Treatment Assessment

Questions

