BELT ACID MINE DRAINAGE WATER TREATMENT PLANT
Historical Coal Mining and Coking
Chemistry Of Pyrite Weathering: The Acid-Forming Process

Summary Reaction For Pyrite Weathering

Pyrite + Oxygen + Water $\rightarrow$ Iron Hydroxide + Sulfuric Acid

$$\text{FeS}_2 + 15/4 \text{O}_2 + 7/2 \text{H}_2\text{O} \rightarrow \text{Fe(OH)}_3 + 2 \text{H}_2\text{SO}_4$$
Anaconda Mine Workings in Belt
Belt Creek
Water Quality

Exceeds:
• aluminum
• cadmium
• iron
• nickel
• zinc
Belt Water Treatment
Plant Engineering Design Update

- Finishing 30% Design
- Treatment Type:
  - Single Stage Lime Treatment
- Sludge Management
  - Injection Into Underground Workings
Single Stage Lime Treatment
Design Status

Water Treatment Plant Components Under Design or Study:
- Building Type/Layout
- Process Layout
- Electrical/Pumps/Controls Design
- Figuring out the best way to capture groundwater at Coke Oven Flats
- Site Civil Design
- Sludge Testing
- Settling Pond design

Sludge Injection Pipeline Under Design or Study:
- Pipeline Route
- Pipeline Sizing
- Sludge Testing
- Pump Selection
- Power and Controls Design
Coming up.....

**Treatment Plant**
- Site Layout Design
- Building Planning
- Lewis Coulee Flow Monitoring
- Injection Design Investigation for Millard Mine
- Conceptual Design Completion

**Sludge Injection**
- Reporting on latest mine pump test
- Well casing and grouting
- Test sludge injecting with water
- Pipeline route soil testing
Progress
Thank You

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