Peanut Mine Reclamation

Crested Butte Land Trust

2013 San Juan Mining Conference
Lake City, CO April 18
Property Timeline

1880: Town of Crested Butte was founded

1890-1920: Denver & Rio Grande Railroad passed through on way to Smith Hill Mine

1904-1954: Peanut Mine produced 715,000 tons anthracite coal from multiple seams

1961-1980: Silver ore processing plant

2000: Coal waste spontaneously combusted motivating reclamation efforts

2001: Acquired by the Crested Butte Land Trust

2002: Peanut Mine Inc. was create as ownership organization to protect the Land Trust from liability and reclamation preparations began

2003 - 2005: Peanut Mine was reclaimed with grant funding and volunteer support

2012: State of Colorado issued letter of No Action signifying a complete reclamation
Property Context

- 87 acres
- 1.25 miles from Crested Butte
- In the Slate River Valley where the Land Trust has protected over 1,200 acres
• In 1999 the community raised $2 million to preserve the Lower Loop area and create trails

• Since 1999 the community has built an additional 5+ miles of trail

• Trails are used for hiking, biking and horseback riding as well as winter Nordic skiing

• The Slate River Valley now includes over 12 miles of trail and connects the Town of CB to the Raggeds Wilderness
When purchased, Peanut Mine contained 16 acres with:

- Coal refuse (6 acres, 26,000 yards)
- Hard rock mineral tailings (7.13 acres, 30,000 yards)
- Hard rock mineral tailings ponds
- Hard rock ore (12,000 yards)
- 2 underground storage tanks (UST) containing residual petroleum products and water
- Scrap metal
- Mine/processing buildings
Concerns existed about:

- Spontaneous coal combustion (occurred in 2000)
- Acid leaching of minerals
- Quality of water flowing through the site into the wetlands & Peanut Lake (cadmium, cooper, lead, manganese and zinc)
- Petroleum soil contamination from UST’s

Assessments confirmed that:

- Water quality from mine adit is:
  - generally low in trace minerals
  - exceeds standards for zinc
- Shallow bedrock depths have protected contaminants from migrating into the aquifers
Peanut Mine and mill site
Looking East

Yellow line is approximate property boundary.

Lower Loop parcels
Wildbird Estates
Coal tailings
hard rock tailings
Trail through the mine
Taken in 2002
Partnership: Colorado Division of Reclamation, Mining and Safety (CDRMS)

Priority Site: Propensity for spontaneous combust
( Division of Minerals and Geology- Inactive Mines Program)

• CDRMS
  – Secured Office of Surface Mining funding for coal waste reclamation
  – Entire reclamation design
  – Entire reclamation implementation

• CBLT
  – Secured Brownsfield grant for silver mill waste reclamation
  – On-site coordination
  – Re-vegetation maintenance
  – Long term monitoring
Source of Funds

- EPA Brownsfield grant cleanup funds $200,000
- State Office of Surface Mining (OSM) $210,000
- State OSM Cleanup Planning Funds $50,000
- Gates Family Foundation $50,000
- Neighbor’s funds $57,000
- Crested Butte Land Trust $246,970

TOTAL $813,970

EPA funded 26%
State Office of Surface Mining funded 34%
Neighbors funded 7.5%
Crested Butte Land Trust funded 32%

In-kind community support also contributed to the success of the project
Reclamation

- Combined & isolated mining related waste products
- Removed 60,000 tons of waste
- Recreated the natural landscape
- Planted 47,000 trees
Tasks

• Established haul routes & sediment control structures

• Prepared disposal area
  – Tailing and underlying material removed
  – Compaction
  – Built under-drain system
  – Limestone aggregate and geotextile blanket placed

• Tailing and coal waste excavated & disposed
  – Material mixed
  – Compaction
  – Coal waste top layer
  – Soil, mulch and fertilizer surface layer

• Surface roughened

• Hydrologic controls
  – Mine water channels built
  – Diverted water away from disposal (cell) area
## Use of Funds

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Cost</th>
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<tbody>
<tr>
<td><strong>Assessments</strong></td>
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<tr>
<td></td>
<td>Phase I &amp; Phase II Environmental Assessment</td>
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<td></td>
<td>Characterization Studies &amp; Preparation of Plan</td>
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<td><strong>$107,000</strong></td>
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<td><strong>Cleanup</strong></td>
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<td></td>
<td>Removal of Scrap Iron</td>
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<td>Removal of Underground Storage Tanks</td>
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<td>Earthwork</td>
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<td>New Soil Composition</td>
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<td>Wetlands Construction &amp; Surface &amp; Water Channels</td>
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<td>Preparation of Vegetation</td>
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<td>Re-vegetation</td>
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<td>Equipment Rental</td>
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<td>Legal</td>
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<td><strong>TOTAL</strong></td>
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<td><strong>Monitoring after cleanup</strong></td>
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<td>Site Assessment after Cleanup</td>
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<td>Annual Monitoring for Five Years</td>
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<td><strong>Transaction and Due Diligence</strong></td>
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Award

Recognized as the best inactive mines reclamation project in the country for 2008

CDRMS received the National Award of Excellence from the U.S. Department of the Interior Office of Surface Mining, Reclamation and Enforcement
Hydrologic Controls

Closed adit

Diverted streams away from the cell area
Re-vegetation

- Spruce trees
- Aspen trees
- 3 native shrub species (raspberry, currant, shrubby cinquefoil)
- 4 native forb species
- 10 native grass species
Re-vegetation Maintenance

4 water tanks deliver spring water throughout the property for hand watering with hoses
Structures

Adit

Pump house

Wagon frame