

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

# **Bald Butte and Great Divide**

## **Reclamation Project**

**Lewis and Clark County, Montana**





# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

## Brief History

### Marysville Mining District:

Mining peaked in 1880's to 1890's, very busy area with numerous mines  
Total output in early 1900's estimated at \$30,000,000 to \$50,000,000, largest producer was the  
Drumlummon

### History of Bald Butte:

35,000 feet of underground workings, operated from 1881 to 1942 intermittently,  
5, 10, 20 and 40 stamp mills in Dog Creek, tailings reworked at least twice  
with cyanide, produced an estimated \$3.5 million at \$36 an ounce.

### History of Great Divide:

Actually waste from two mines – the Bald Mountain and Belmont/Cruse,  
founded by Thomas Cruse – Drumlummon, 20 stamp mill, 27,000 feet of development,  
Operated from 1876 to 1951, several attempts in the 1980's and 1990's to reopen the mine, but no  
production, produced an estimated \$5 million at \$36 an ounce, now a busy ski hill serving the  
Helena area.



**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**





## MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

Initially:

Dog Creek – MDEQ

Great Divide - BLM

The projects initiated separately with each entity conducting their own investigation. BLM tried to cap the tailings at Great Divide in place in the 1980's. MDEQ needed a repository site.

Decision: A joint repository on BLM that was at a centralized location. MDEQ and BLM entered into a grant agreement to establish this partnership.

The projects were a joint effort between the BLM and MDEQ. More “bang for our buck.” BLM contributed monies for Great Divide and paid for 20% of construction oversight. MDEQ paid for the repository construction and work in Dog Creek.

# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



# Why Reclamation?

- Fifty-five acres of disturbance:
  - Numerous Waste Rock Dumps totaling 69,000 cy
  - 147,000 cy of tailings in the Dog Creek floodplain, a tributary to the Little Blackfoot River
  - 38,000 cy of tailings eroding out of ski hill into Jennie’s Fork, a tributary to Silver Creek
  - 20 hazardous mine openings and subsidence features
  - Contaminants in soil, sediment and surface water included:

• Antimony	Arsenic	Manganese
• Cadmium	Copper	Silver
• Mercury	Lead	Zinc
- Both sites high up on MDEQ’s Abandoned Mine Priority List
- Private, BLM and minor USFS ownership



**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



Tailings in Dog Creek



**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



Waste Rock in Dog Creek Drainage





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



Cyanide Drum Disposal Area in Dog Creek drainage



**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



Stope opening at Great Divide



**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

Subsidence feature at Great Divide



The image shows a close-up view of a subsidence feature in a natural setting. The feature is a dark, irregularly shaped hole in the ground, surrounded by sparse vegetation and rocky soil. The surrounding area is a mix of green grasses and small, light-colored rocks. The background shows a vast, open landscape with rolling hills and a clear sky.



**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**




Sand tailings eroding out of ski hill

05/16/2011

A banner image showing a scenic view of a lake and mountains with the text "MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY" overlaid in yellow.

# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

A photograph of a ski hill parking lot covered in sand tailings. A red truck is parked on the left, and a red building is visible in the background. The sky is blue with white clouds.

Sand tailings being deposited in ski hill parking lot

# Duration

- Began in July 2010
- First season – build repository, dewater Dog Creek area and excavate enough tailings to use as cushion layer in repository
- Second Season - all of Great Divide tailings, waste rock and more tailings from Dog Creek
- Third season – finish Dog Creek area and button up repository
- Finished November 2012
- Three construction seasons totaling 270 contract days

A scenic landscape featuring a calm lake in the foreground, reflecting the surrounding environment. In the background, there are rolling hills and mountains, some with patches of snow. The sky is a clear, pale blue.

# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY







**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



09/28/2012

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



10/31/2012

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**





# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

08/25/2010



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



**DANGER**  
Open Mine Shafts  
Closure in Progress  
Do Not Enter

  449-3746

# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

Challenges?

# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



04/13/2011



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY





# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY

More challenges:

ARRA funding

Vandalism

End of date on the ski hill, \$10,000 per day in damages

Continental Divide Trail

# Cost

- JEM Contracting, Inc. (actual construction cost) = \$5.52 million
- Pioneer Technical Inc. (investigation, engineering design and construction oversight) = \$550,000

## Funding Sources -

- Montana DNRC Grant = \$300,000
- BLM Contribution = \$1.0 million
- MDEQ AML Grant = \$4.5 million

# Benefits

- Reduced risk to human health and the environment
- Removed 254,000 cy of heavy metal laden tailings and waste rock from the environment
  - Restored Dog Creek to a fish sustaining habitat
  - Removed pollutant source from headwaters of Silver Creek
  - Improved wildlife habitat
  - Reduced risk of HMO's
- Project stimulated the local economy by utilizing numerous Montana resident operators and subcontractors

# **PARTICIPANTS**

- MDEQ – Abandoned Mine Lands Program
- BLM – Butte Field Office
- US Forest Service – Helena National Forest
- Pioneer Technical Services – Helena, Montana
- JEM Contracting Inc.– Billings, Montana
- South Hills Electric – Helena, Montana
- Fence Crafters – Helena, Montana
- McGlone Landscaping – Billings, Montana
- Northwest Linings – Kent, Washington

**THANK YOU!**



**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



A banner image at the top of the page showing a wide lake reflecting the sky, with forested mountains in the background under a blue sky.

**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



05/03/2013





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**



# MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY





**MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY**

Questions?

Steve Opp – MDEQ, 406-841-5030 or [sopp@mt.gov](mailto:sopp@mt.gov)

Corey Meier – BLM, 406-533-7671 or [corey\\_meier@blm.gov](mailto:corey_meier@blm.gov)