

Snowshoe Mine Reclamation Project

Lincoln County, Montana





MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
**Abandoned Mine Land (AML)
Program**

- Who We Are
 - Part of the Montana Department of Environmental Quality
- What We Do
 - AML program reclaims lands impacted by past mining practices
- What Qualifies as an Abandoned Mine
 - Lands mined or processed for minerals and affected by such processes
 - Abandoned or left in an inadequate state prior to 1977
 - No continuing responsibility under federal law (aka. No Responsible Party to pay for cleanup)
- AML Program funded through a grant from the Office of Surface Mining



U.S. Forest Service - Who are We?



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USFS AML/CERCLA Program

- AML/CERCLA program within the Forest Service is shared between Minerals and Geology and Engineering.
- We clean-up abandoned mines, and other contaminated facilities such as wood treatment plants, buried fuel tanks, dumps, etc...
- The program is small, with most funding going to on the ground projects. The funding we get for the program nationwide is about 1/4-percent of the total USFS budget.
- We got started on a fairly serious basis in the mid-1990s
- Because we get limited funding we love partnerships!!



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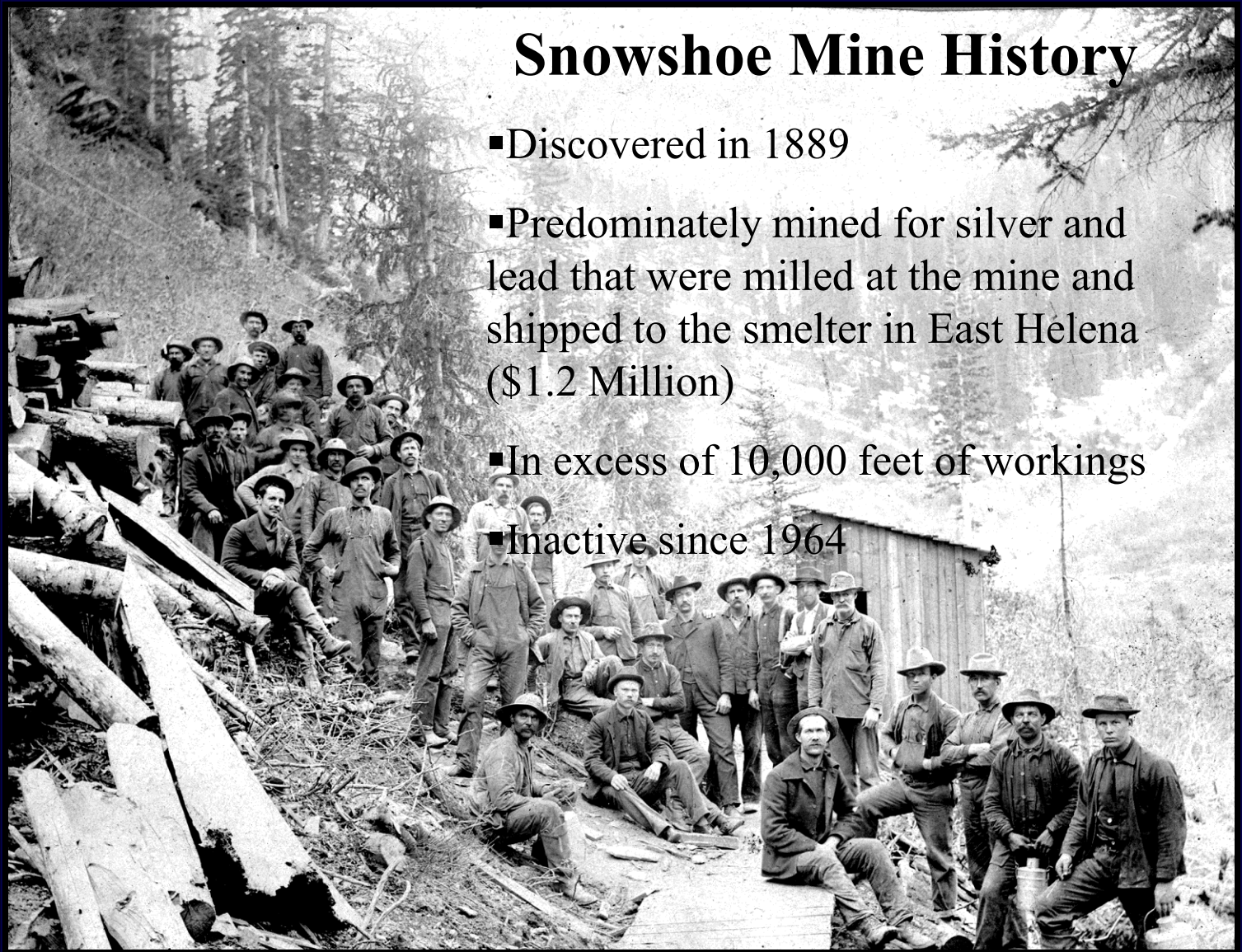
Snowshoe Mine

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Snowshoe Mine History

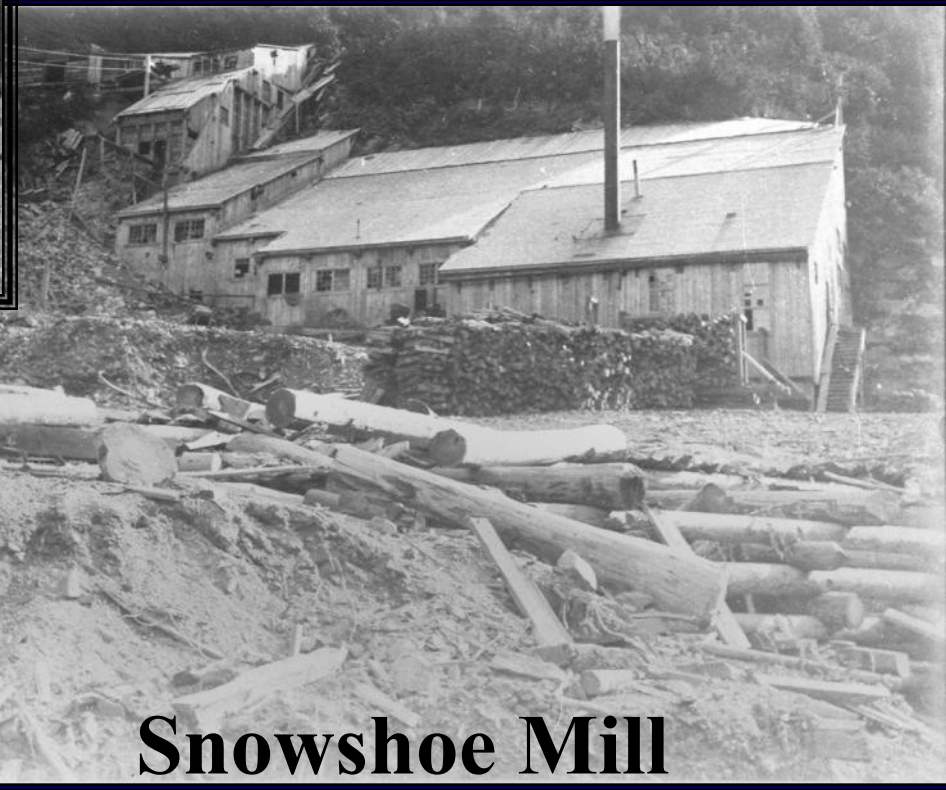
- Discovered in 1889
- Predominately mined for silver and lead that were milled at the mine and shipped to the smelter in East Helena (\$1.2 Million)
- In excess of 10,000 feet of workings
- Inactive since 1964



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Office



Snowshoe Mill

Snowshoe Mine – Why Reclamation?

- Thirteen acres of disturbance:
 - 4 Waste Rock Dumps
 - 65,000 cubic yards of Mill Tailings in the Snowshoe Creek floodplain
 - Contaminants in soil, waste, surface water and groundwater included:
 - **Antimony**
 - **Arsenic**
 - **Cadmium**
 - **Copper**
 - **Iron**
 - **Mercury**
 - **Lead**
 - **Zinc**
- 9th on the DEQ/MWCB Abandoned Mine Priority List
- Private and US National Forest ownership

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Tailings



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Tailings



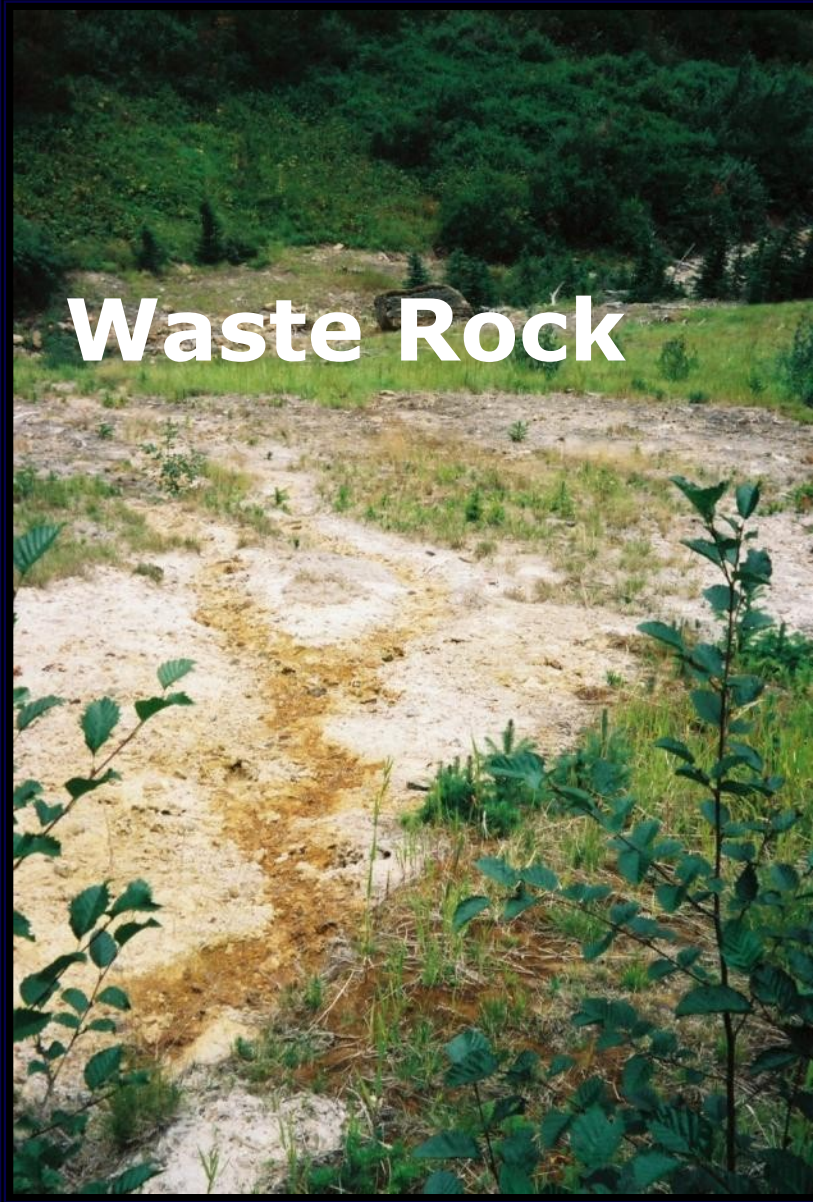
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Waste Rock

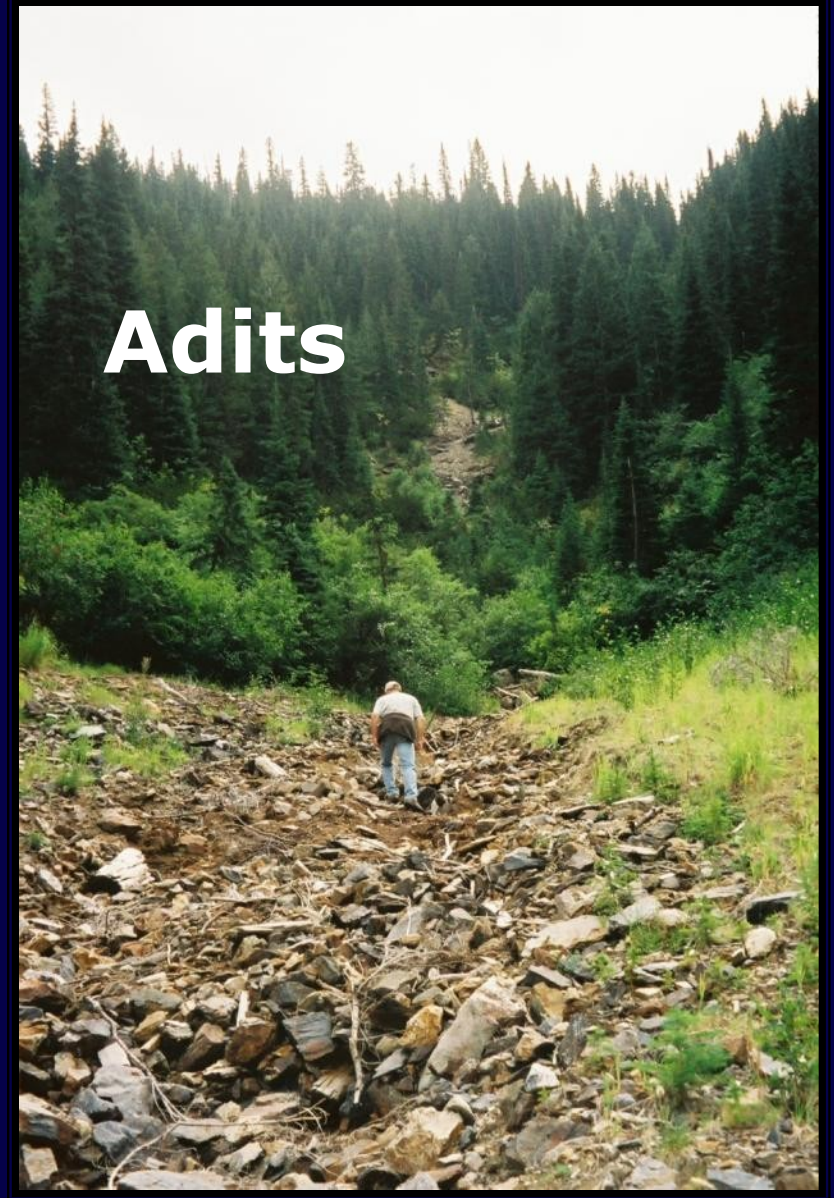


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Waste Rock



Adits





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- Tailings – Removal and Disposal of 65,000 cubic yards
 - Repository on USFS property
 - 2000' of stream diversion and then reconstruction including a wetland/pond complex
 - Total of 13 acres of reclaimed lands
- Large Waste Rock Dump – treated in place
 - 12-inches cover soil
 - Erosion control mat
 - Rip-rap and armor the intermittent drainage
- Small Waste Rock Dumps – No Action
 - Inaccessible
 - Low Risk
 - Adit Closures
- Work Summer 2007 – Summer 2010.

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2008/09/26

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2008/08/28

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Cost

- NorthWind, Inc. (actual construction cost) = \$3.34 million
- Pioneer Technical Inc. (investigation, engineering design and construction oversight) = \$560,000

Funding Sources -

- Montana DNRC RIT Grant = \$300,000
- Forest Service Contribution = \$600,000
- DEQ AML Grant = \$3 million

Benefits

- Reduced risk to human health and the environment
- Removed heavy metal laden tailings from Snowshoe Creek
 - Restored Snowshoe Creek to a fish sustaining habitat
 - Removed pollutant source from Big Cherry Creek and Kootenai River
 - Improved wildlife habitat
 - Reduced risk of HMO's
- Project stimulated the local economy by utilizing numerous MT resident operators and subcontractors

PARTICIPANTS

- MT DEQ – Abandoned Mine Lands Program
- US Forest Service – Kootenai National Forest
- Pioneer Technical Services (investigation and design) - Montana
- North Wind Inc. (lead contractor) – Idaho
- Noble Excavating - Montana
- Quality Landscaping - Montana
- Northwest Linings - Washington
- Horizon Helicopters, Inc. - Idaho

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1903



2003



2010

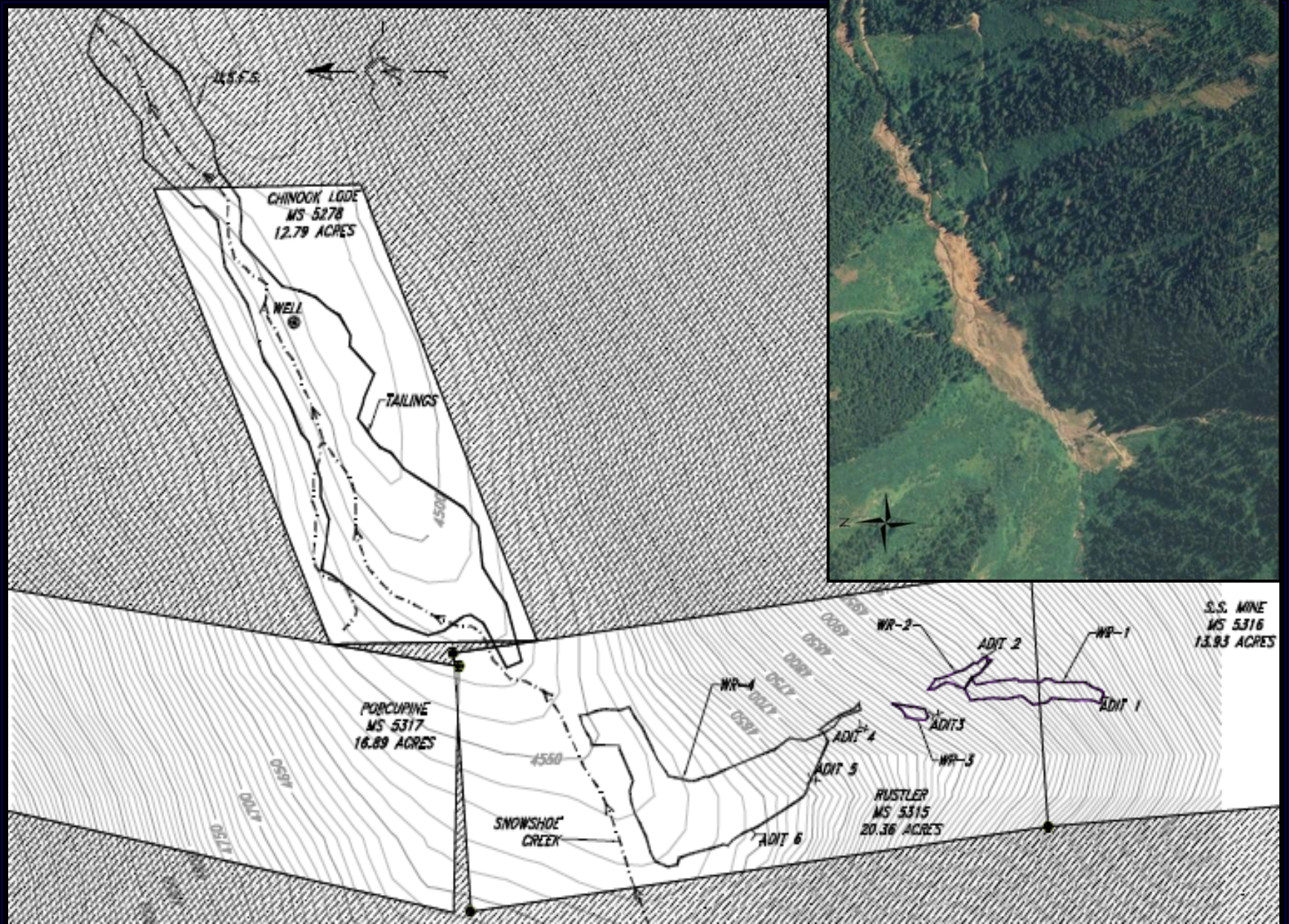


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The Rest of the Story...

**HOW TO GET THROUGH THE
PROCESS**

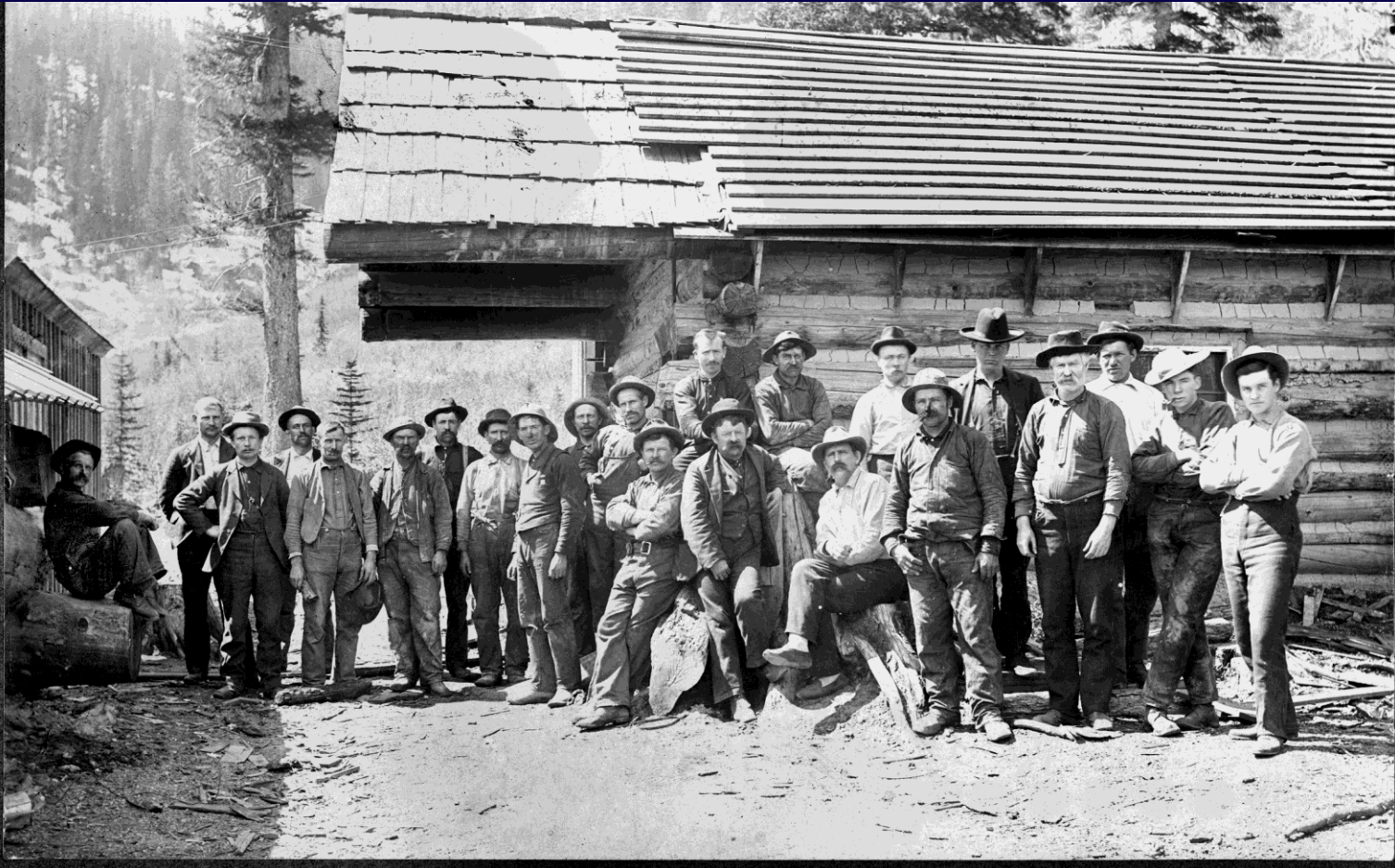
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Forest Service DEQ Partnership

- Joint cleanup
- Joint Repository on USFS Lands
- Agreement on O&M into the Future

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The negotiations began in early 2004. Ending with a final signed agreement in September 2005

Changing Personnel

- USFS: Ray TeSoro, Nancy Rusho**
- DEQ: Tom Mostad, Autumn Coleman, Ben Quinones, Steve Opp**



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Big Cherry Millsite



**Cleanup
2007-2008**





Streamside area

Big Cherry Repository



Challenges

- **The Snowshoe Road is a County Road accessing the Cabinet Mountains and Grizzly Bear Habitat. How much road do we/can we leave?**
- **Working with the County and Forest Service on Road Closures and how best to protect public safety and get this large project done as quickly as possible**
- **How to protect as much of the history of the site as possible.**
- **Removal of waste off USFS lands below the Snowshoe Site**



**Waste removed
from area below
the bridge**



THANK YOU!

- **Lynn Hagarty, Libby District Geologist**
- **Bobbie Lacklen, Kootenai Forest Geologist**
- **Paul Stantus, Kootenai Forest Engineer**
- **Al Bratkovich, Libby District Wildlife Biologist**
- **Steve Wagner, Libby District Hydrologist**
- **Paul Hooper, Libby District Fish Biologist**
- **Mark White, Libby District Archeologist**
- **Malcolm Edwards, Libby District Ranger**

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Questions?