

FOREST ROSE MINE RECLAMATION PROJECT APRIL 30, 2014

Presented by:

**Montana Department of Environmental Quality
(MDEQ)**

Federal Superfund – Construction Services Section

Herrera Environmental Consultants

GOVERNMENT COORDINATION

- MOU between DEQ-USFS-Granite County
- Joint DEQ/FS Action Memo
 - Document satisfies FS CERCLA requirements and DEQ AML requirements
- DEQ/FS Repository Agreement
 - DEQ pays costs (through RDG); FS provides ground
 - Any future response costs apportioned based on waste contribution (DEQ 73%, FS 27%)
 - DEQ monitoring & maintenance for 3 years
- Joint public meetings, press releases, road closures, cultural resource investigations, etc.




Granite County



MONTANA AML

- Funded through a grant from the U.S. Department of the Interior, Office of Surface Mining
 - SMCRA
- An abandoned mine that is eligible for funding are mines and/or mineral processing that:
 - was abandoned prior to 1977
 - has no responsible party to pay for cleanup
- MT “certified” in 1989



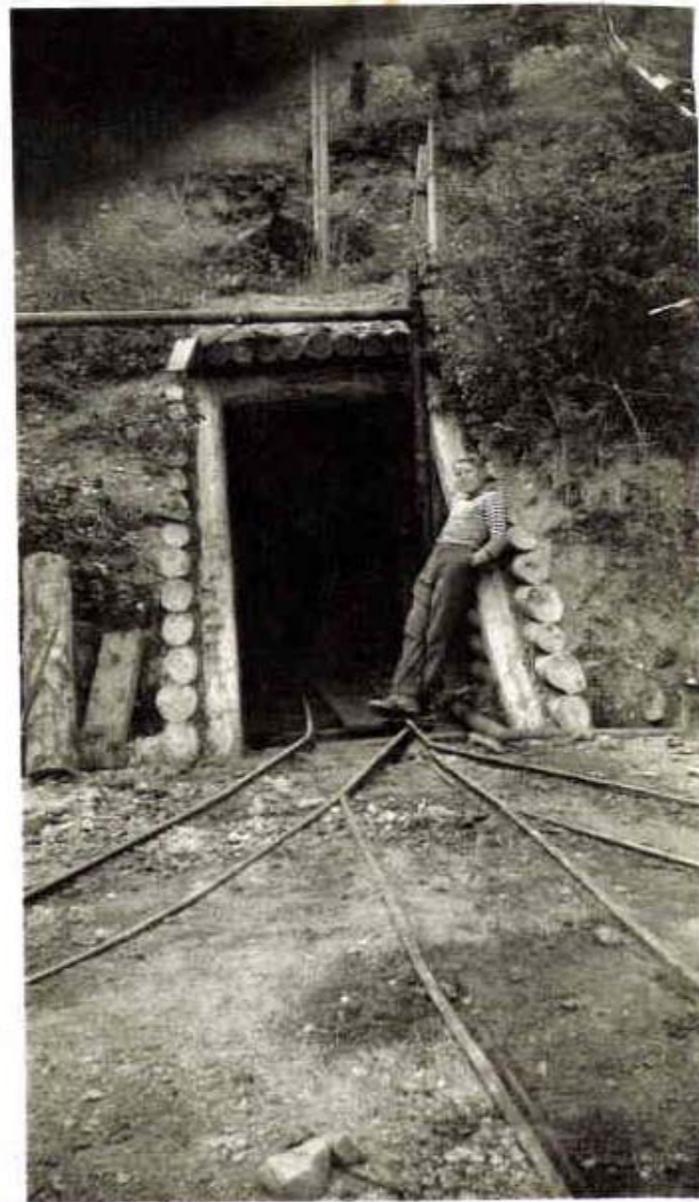
FOREST ROSE MINE SITE LOCATION MAP



FOREST ROSE MINE HISTORY



Photos courtesy of Harry Barker



FOREST ROSE MINE HISTORY



FOREST ROSE MINE HISTORY



TAILINGS IMPOUNDMENT



WASTE ROCK DUMP



TAILINGS IMPOUNDMENT



TAILINGS IMPOUNDMENT



TAILINGS IMPOUNDMENT



09/10/2010

DUNKLEBERG CREEK



DUNKLEBERG CREEK





TAILINGS
IMPOUNDMENT
2011 FLOODING



DUNKLEBERG CREEK 2011 FLOODING



FOREST ROSE SITE CHARACTERIZATION

- Previous investigations 1993, 1998, 2004.
- 2010 RI - 39 samples
 - soil, water, sediments, waste (tailings & waste rock)
 - Results compared to Montana Risk-Based Cleanup Guidelines (RBCG)
 - Hazardous Materials Inventory
- **Arsenic** exceeded RBCGs in all samples. **Cadmium** and **Lead** exceeded RBCG in 9 samples.
- **Arsenic** and **Lead** are the primary drivers for reclamation.

INITIAL REPOSITORY SITING



REPOSITORY SITE INVESTIGATION

- Topography, subsurface conditions
- test pits
- borehole/monitoring well
- Samples analyzed for geotechnical and agronomic properties



EE/CA PREFERRED ALTERNATIVE

- “Capping in Repository Located on USFS Administered Lands and Creek Stabilization”
 - 120,000 yd³ waste removal, placement in engineered repository with multilayer cap
 - Regrade, recontour, place topsoil, and revegetate waste removal areas and repository
 - Runon/runoff controls
 - Reconstruct 1300’ Dunkleberg Creek
 - Temporary fencing of disturbed areas



CONSTRUCTION CONTRACT

- Constructed with two contracts
- Contract awarded to lowest responsive and responsible bidder
 - 1) Road Improvements
 - DS Jr. Trucking – Drummond, Montana
 - \$398,330.80
 - Construction June 12th, 2012 – July 1st, 2012
 - 2) Mine Reclamation:
 - Mungas Company - Philipsburg, Montana
 - \$3,041,940.35
 - Construction started June 29th, 2012 – October 9th, 2013



ROAD IMPROVEMENTS



CONSTRUCTION



CONSTRUCTION



CONSTRUCTION



CONSTRUCTION...



CONSTRUCTION



REPOSITORY EXCAVATION



FILLING REPOSITORY



WINTERIZATION



CONSTRUCTION SUMMARY

- ~ 100,000 cubic yards of tailings removed
- ~ 25,000 cubic yards of waste rock removed
- Contract amended to include lime addition to stabilize tailings
- Additional contract modification for winter shutdown
- Installed grade control structures on Dunkleberg Creek
- Planted willows and hydroseeded and mulched reclaimed site





REPOSITORY TIME LAPSE



TAILINGS IMPOUNDMENT EXCAVATION



TAILINGS IMPOUNDMENT EXCAVATION



LESSONS LEARNED

- Following a Flood:
 - Site access
 - 2011 flooding washed out original access road
 - Retest soil properties
 - Moisture content of tailings was altered after 2011
- Construction Window (May – October)
 - Lowest responsive and responsible bidder
 - Production rates and methods vary
- Constant communication needed
 - landowners and local government



Questions

