



8TH ANNUAL
ABANDONED MINE LANDS SYMPOSIUM

WHITHER PRIVATE LEGACY
WASTE REMEDIATION

Presented by:
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ABOUT US



THINGS EITHER GET DONE WITH PUBLIC FUNDING OR PRIVATE FUNDING,
OR THEY DON'T GET DONE AT ALL

WE PROFITABLY REPURPOSE HISTORIC MINE WASTE & AGGREGATE
MATERIAL WHILE RESTORING LAND TO ITS ORIGINAL STATE.

WE ARE A PRIVATE ENTERPRISE, WITH THE VISION TO BECOME ONE OF
THE FIRST COMPANIES TO HELP SOLVE THE PROBLEM OF LEGACY MINING
SITES' IMPACT ON THE ENVIRONMENT.

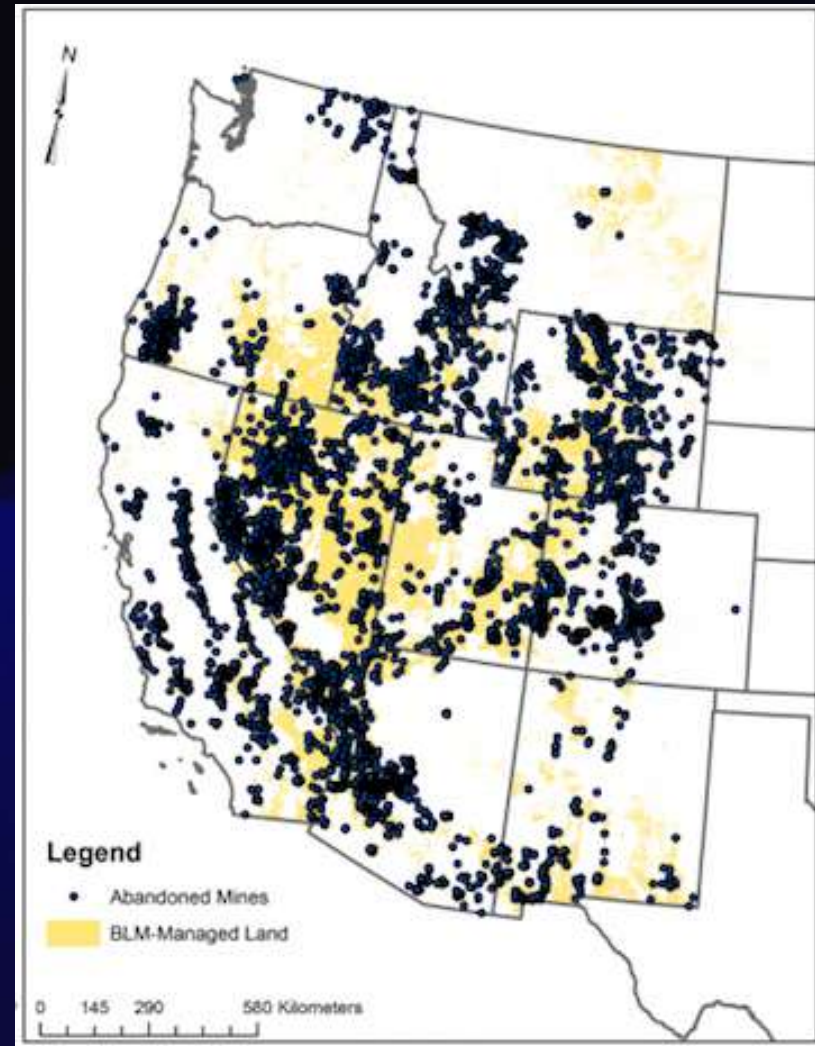
WE ARE AT A TIME AND PLACE WHERE; PROVEN TECHNOLOGY EXISTS TO
PROFITABLY EXERCISE THE CONCEPT OF CIRCULAR ECONOMY - TO
RECLAIM LAND AND IMPROVE WATER QUALITY BY BENEFICIALLY RE-
PROCESSING LEGACY WASTE MATERIAL, AND SOCIETY HAS MANDATED
THIS WORK TO BE DONE.

REMOVE, RESTORE & REUSE



THE CHALLENGES

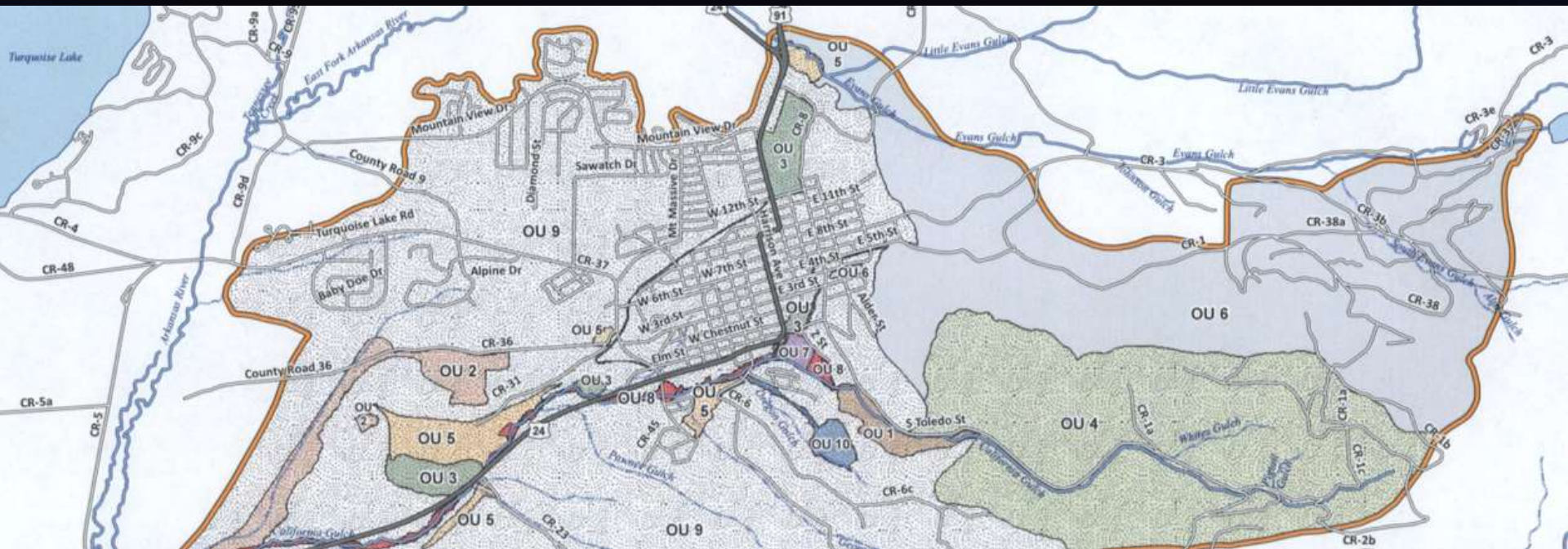
- ❖ **FEDERAL JURISDICTION.**
 - ❖ DISTRICTS MANAGED BY THE FEDERAL GOVERNMENT ARE GOVERNED BY CERCLA, EFFECTIVELY PROHIBITING REMEDIATION UNDER CURRENT REGULATIONS.
- ❖ **STATE REGULATORS.**
 - ❖ STATES HAVE A WIDE RANGE OF MINING FRIENDLINESS.
 - ❖ MOST REQUIRE REMEDIATION PROJECTS TO BE PERMITTED AS MINES.
 - ❖ ARIZONA HAS SPECIFIC REGULATIONS FOR REMEDIATING LEGACY SITES.
- ❖ **COUNTY REGULATORS.**
 - ❖ COUNTY REGULATIONS FOR NATURAL RESOURCE ACTIVITIES VARY GREATLY, ARE AMBIGUOUS AND SUBJECT TO HIGHLY-ERRATIC INTERPRETATIONS
 - ❖ THEY ARE HIGHEST RISK IN PERMITTING PROCESS.
- ❖ **STAKEHOLDERS.**
 - ❖ NOT ALL STAKEHOLDERS ARE IN FAVOR OF RECLAMATION
- ❖ **CONCLUSIONS.**
 - ❖ PERMITTING IS POSSIBLE IN ALL STATES AND COUNTIES.
 - ❖ SOME ARE JUST MORE DIFFICULT THAN OTHERS.



THE OPPORTUNITY:



LEADVILLE DISTRICT-CALIFORNIA GULCH SUPERFUND



- ❖ OPERABLE UNIT 6 (OU6) – STARR DITCH, PENROSE DUMPS, STRAY HORSE GULCH, EVANS GULCH : ACTIVE UNIT
 - ❖ 3.4mi² (2,200ac)
 - ❖ HISTORIC DUMPS GENERATING HEAVY METAL CONTAMINATION & ARD
 - ❖ SURFACE & GROUND WATER TREATED AT LEADVILLE MINE DRAINAGE TUNNEL – OPERATED BY USBR
- ❖ OPERABLE UNIT 3 (OU3) – D&RG RAILROAD SLAG PILES (AND RELATED AREAS): DELETED FROM SUPERFUND
 - ❖ ASARCO ARKANSAS VALLEY SLAG SMELTER SLAG: 56 ACRES
 - ❖ LA PLATA MINING & SMELTING COMPANY SLAG: 7 ACRES
 - ❖ GRANT SMELTER SLAG: (3 ACRES)

THE OPPORTUNITY:

MINE WASTE DUMP RECLAMATION PROJECT (OU6)



- ❖ LEADVILLE MINE DRAINAGE TUNNEL – RED LINE TOP OF MAP OPERATED BY USBR
- ❖ YAK TUNNEL – RED LINE CENTER OF MAP OPERATED BY NEWMONT
- ❖ OU6 – ORANGE AREA
- ❖ GREEN AREA – INITIAL OPERATION (BREECE HILL). CURRENTLY PERMITTED. PROOF OF CONCEPT
- ❖ YELLOW AREA – FULL OPERATION (BREECE HILL & EVANS GULCH).

THE OPPORTUNITY:



MINE WASTE DUMP RECLAMATION PROJECT PHASE 1



❖ PHASE 1 CURRENTLY PERMITTED AREA

❖ RECLAIM PENN MINE 1 & PENN MINE 3 DUMPS

THE OPPORTUNITY:



MINE WASTE DUMP RECLAMATION PROJECT PHASE 1



- ❖ are some photos of Penn 1 and 3. Here are some photos of Penn 1 and
- ❖ PHASE 1 CURRENTLY PERMITTED AREA
 - ❖ RECLAIM PENN MINE 1 & PENN MINE 3 DUMPS

THE OPPORTUNITY:



MINE WASTE DUMP RECLAMATION PROJECT PHASE 1



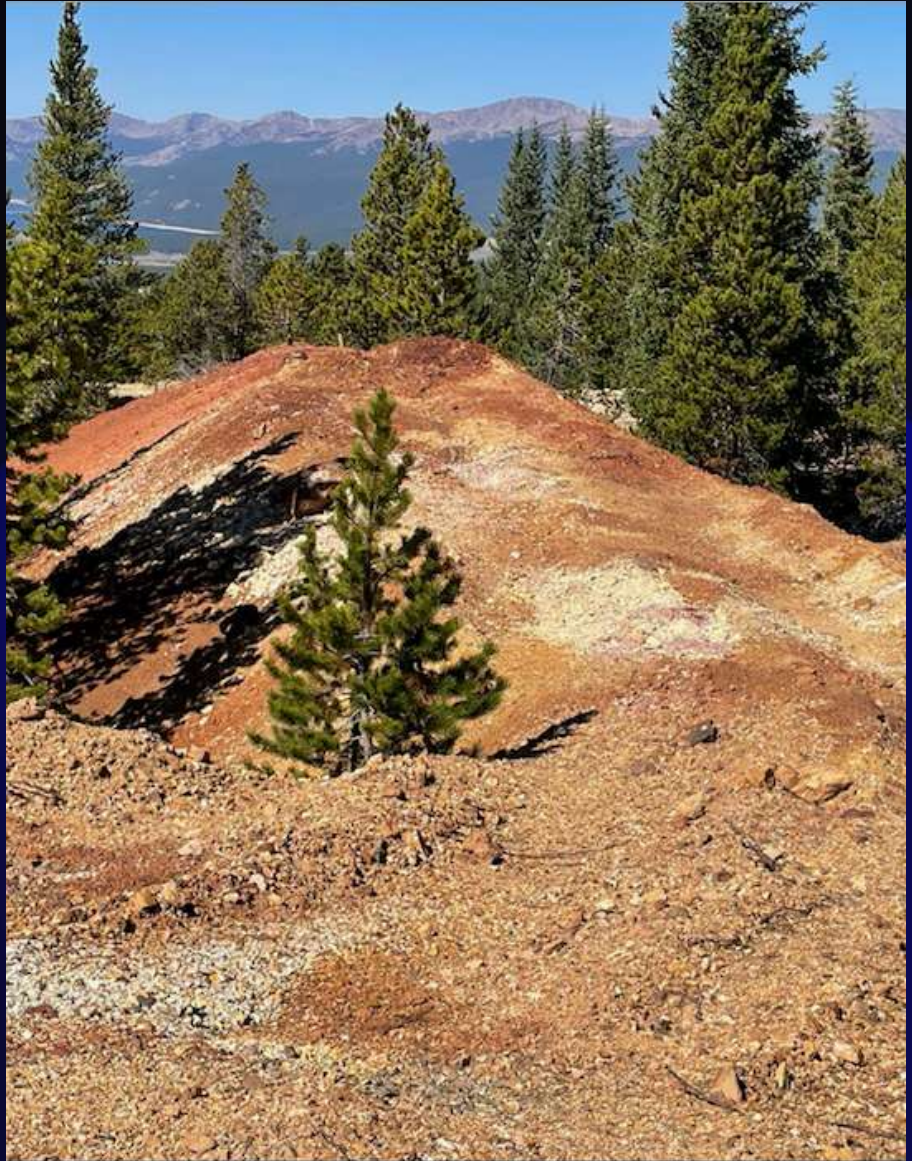
❖ Reprocessing of mineral wastes is not a novel concept.

THE OPPORTUNITY:



MINE WASTE DUMP RECLAMATION PROJECT PHASE 1

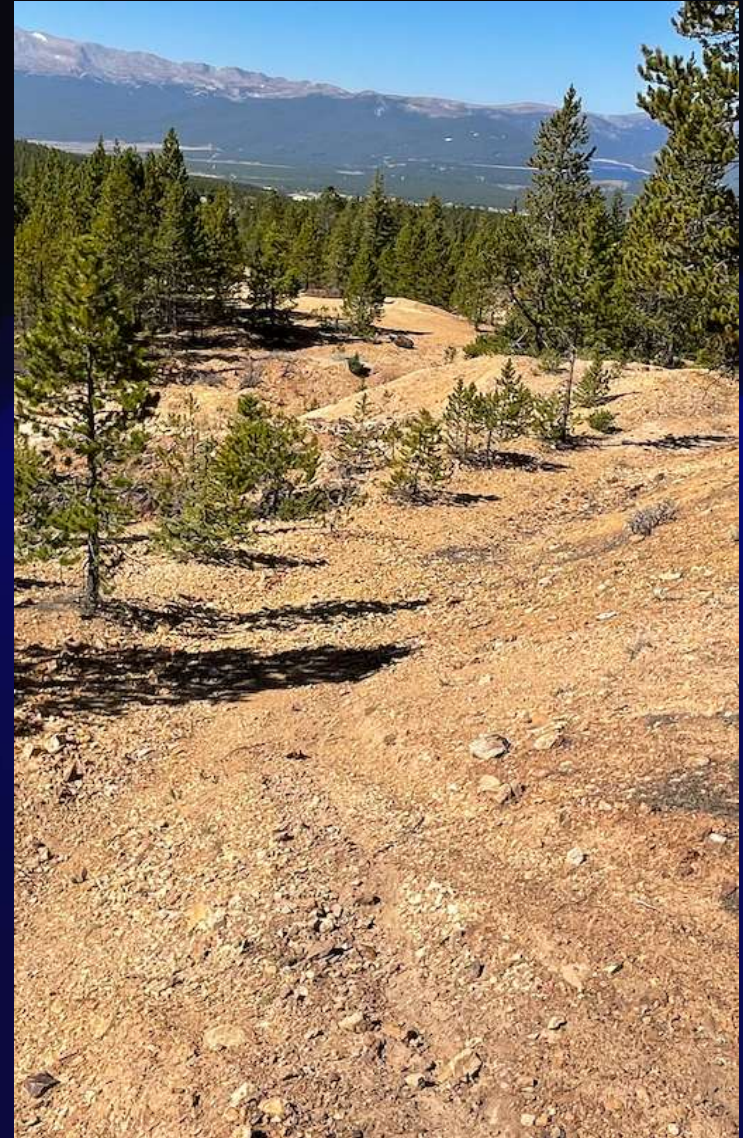
- ❖ Legacy Mining Wastes Represent a Substantial Mostly Untapped Source of Valuable Metals at more than 60,000 sites in the USA Alone (>7,000 in Colorado).
- ❖ Many sites contain wastes with Metal grades greater than a typical New Discovery!



THE OPPORTUNITY:

MINE WASTE DUMP RECLAMATION PROJECT PHASE 1

❖ Demand trends and forward scarcity, is fueling private interest in several historic metal mining districts throughout the world.



PROCESS OBJECTIVE: LEADVILLE MILL (200TPD)



- ❖ Remove Legacy Mine Waste from a Scarred Site that Contains Valuable Residual Precious Metals
- ❖ Re-process the Waste to Recover Gold and Silver Employing Conventional, Safe, Proven Technologies
- ❖ Restore the Mine Scarred Removal Site to Near Original Vegetated Ground Conditions
- ❖ Employ Process Methods that Eliminate Potential for Contamination of Surface and Groundwater ("Zero Discharge")

PROCESS OBJECTIVE: LEADVILLE MILL (200TPD)



- ❖ Final Process Residue is dewatered filtered and compacted for stability in a lined landfill facility with Minimal Visual Impacts and Concurrent Reclamation.

THE OPPORTUNITY:

Slag Repurposing Project (OU3)



- ❖ Repurposing historic slag is another remediation opportunity.
- ❖ The historic Arkansas Valley Smelter, owned by ASARCO is an example.

THE OPPORTUNITY:

Slag Repurposing Project (OU3)



❖ Slag project is currently permitted as an “aggregate quarry”

PROJECT OBJECTIVES



❖ Applications include road base, and asphalt....

PROJECT OBJECTIVES



❖ Concrete and Rip rap....

PROJECT OBJECTIVES



❖ pipe and other bedding material.

CONSIDERATIONS



- ❖ Regulations favor ‘not-for-profit’ approach to remediation.
 - ❖ Federal “Good Samaritan Act and Colorado SB25-054 – the Mining Reclamation & Interstate Compact (& expedited “reclamation-only” permit process) are steps in the right direction, but not helpful.
 - ❖ At best this is a reclaim-one-mine-at-a-time approach – not a practical solution to clean up historic districts. Likely this legislation is developed on premise of excluding private enterprise from the process.
 - ❖ Lawmakers may at some point consider incentives for self-funded private enterprise. This is not likely to happen for many years.
- ❖ Must be permitted as a “mine”.
 - ❖even though it is not a mine.
 - ❖ permitting a reclamation project as a mine is extremely burdensome. Some examples;
 - ❖ Bonding for leaving disturbed land in a reclaimed state after operations.
 - ❖ Water treatment for effluent exiting the project cleaner than baseline. E.g. How can there be in-stream exceedances in TMDL from remedial operations if the TMDL includes inflows from existing dumps, after this material is removed?
- ❖ Stakeholders
 - ❖ Do not assume that everyone would be in favor of environmental clean-up.
 - ❖ Discuss your plans with local county commissioners prior to any investment

THANK YOU

