



# That's Great, But How Are You Going to Fix It? Nevada AML Insight

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Nevada Division of Minerals

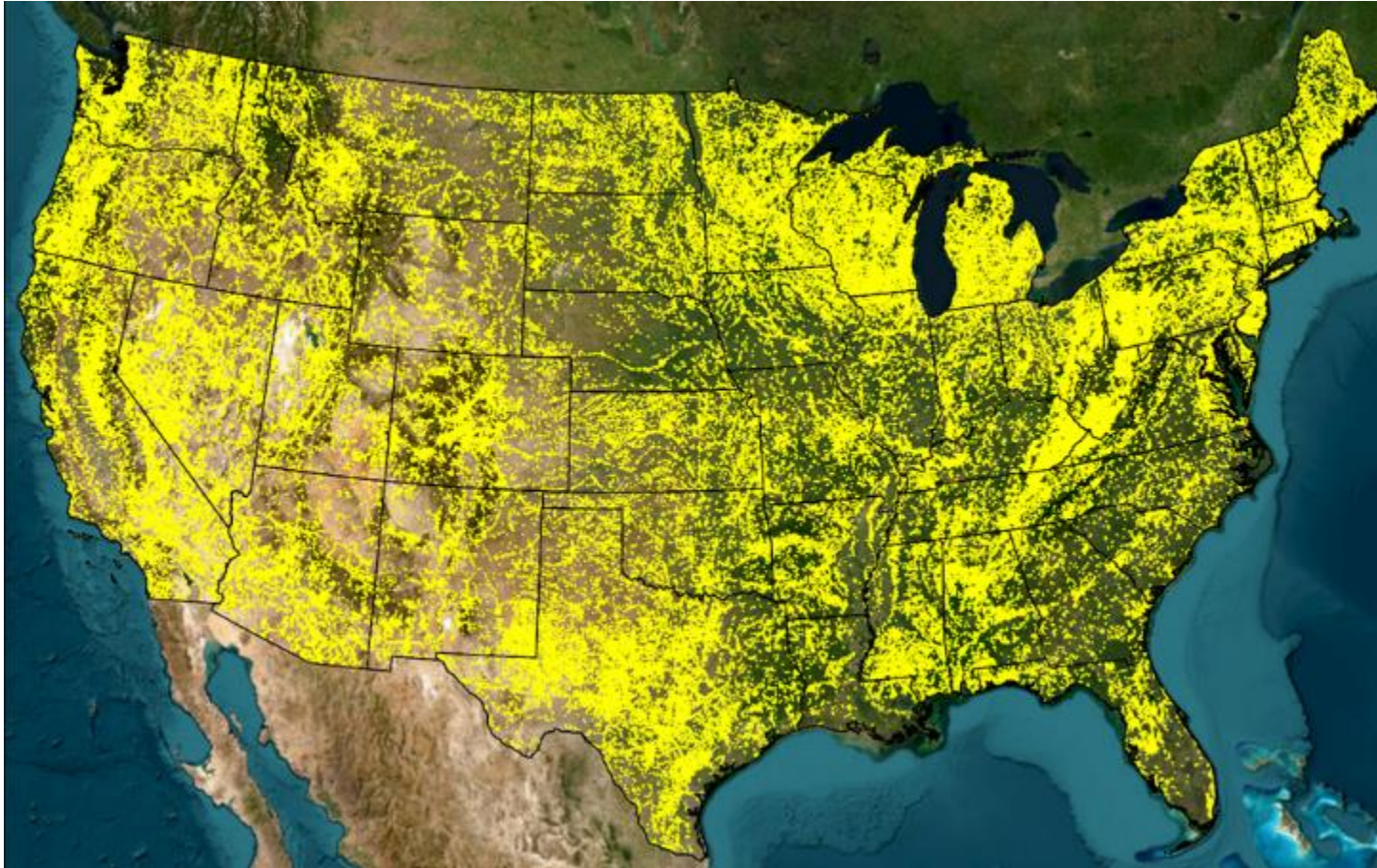




# Abandoned Mine Lands



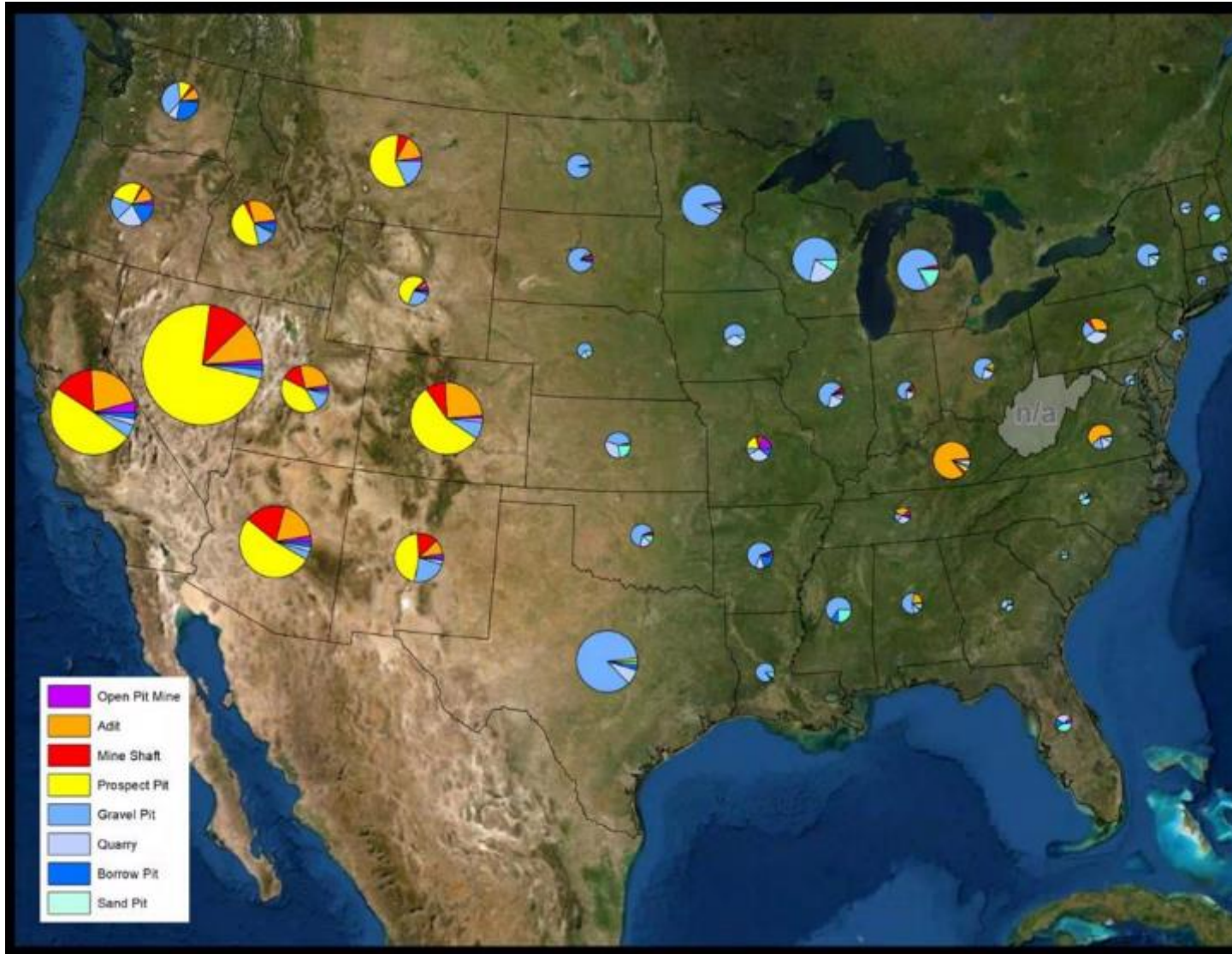




# National Magnitude of the Problem

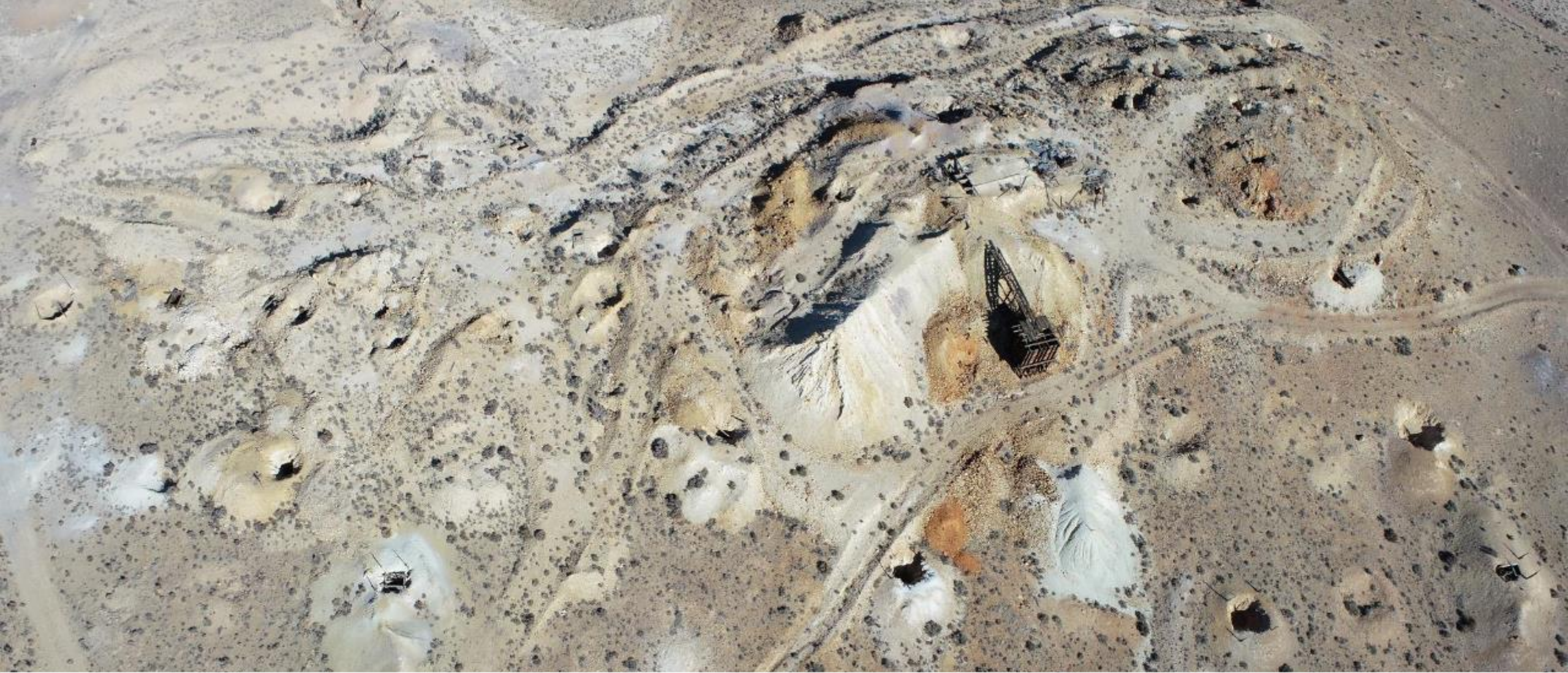
- Coal AML, started in 1977
  - Over \$5 billion in reclamation already completed
  - Just received \$11 billion from IIJA
  - Significant operation and maintenance ongoing costs
- Hardrock
  - No complete inventory
  - \$50+ billion in costs
  - Unknown operation and maintenance ongoing costs

# The West's AML Problem



- Nevada:
- Physical AML, started in 1987
  - Estimates (2021)
    - 50,000 hazards
    - 36 years remaining to complete inventory
    - 40 years remaining to complete safeguarding
    - 119 years to closes 70% of hazards
    - Cost ~\$400,000,000 (not including inflation)
- Thousands of environmental AML hazards
  - No funding dedicated towards inventory
  - Up to tens of billions of dollars to remediate with no time estimate





Change in Scope



# BLM Estimates

## 7. Conclusion

Using the USGS symbol approach greatly improves the BLM's ability to build a current, complete, and accurate database of AML sites and features. This is critical to measuring progress and reporting comprehensive results of program activities. Through field validation of the mine symbols, the BLM can inspect suspected AML sites and take appropriate action to mitigate hazards.

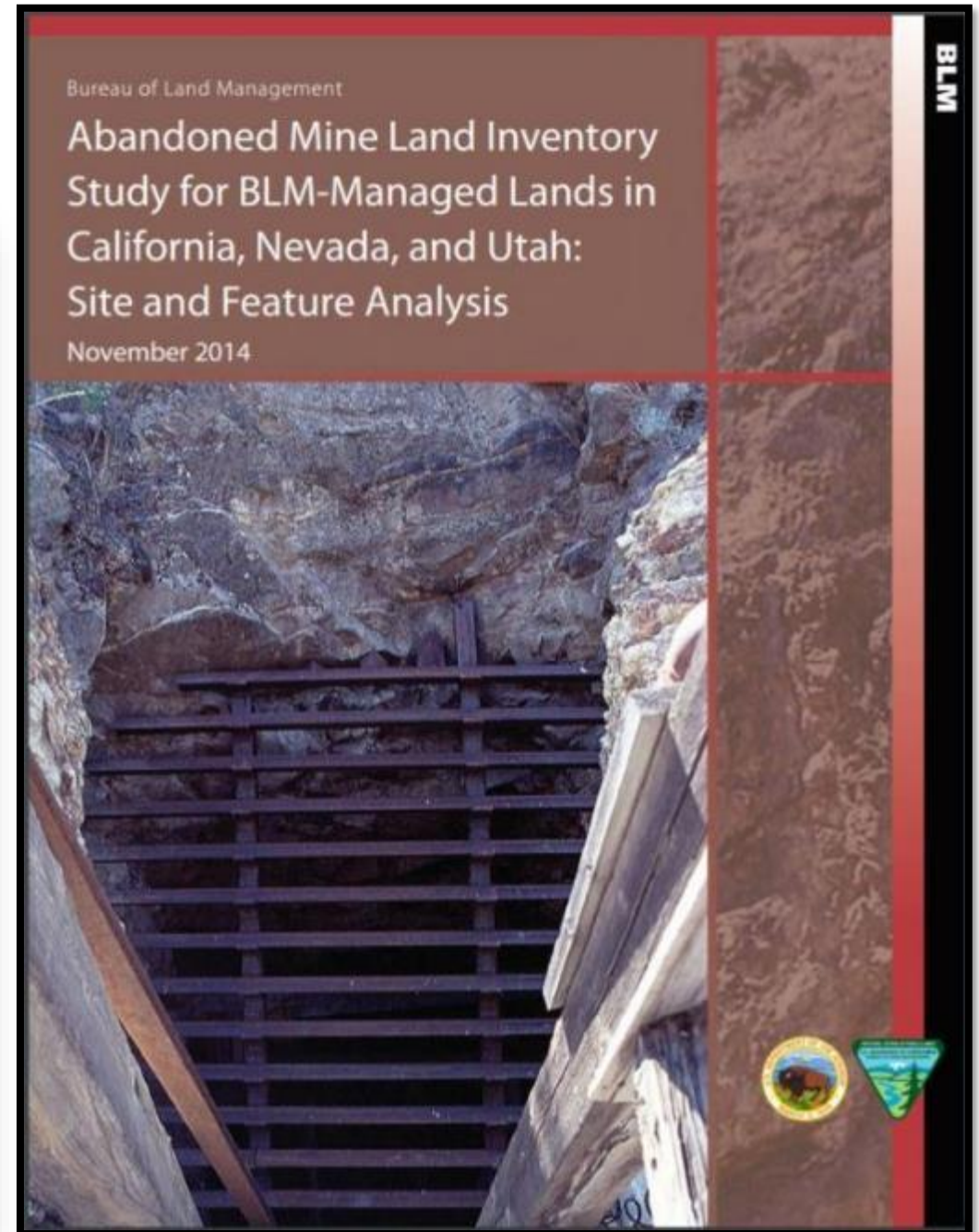
The BLM currently estimates that the total cost of field validating and recording in the AMSCM

database the estimated remaining 93,000 sites and 368,000 features in California, Nevada, and Utah to be approximately \$212 million (see Table 3 for overall summary). This would require 10 two-person teams approximately 20 years to complete. In California alone, there are an estimated 30,308 features that pose physical safety hazards requiring \$588 million to remediate.

Table 3. Overall summary of the estimated number of sites and features remaining to be inventoried on BLM lands in California, Nevada, and Utah and the estimated time and cost to complete the inventory

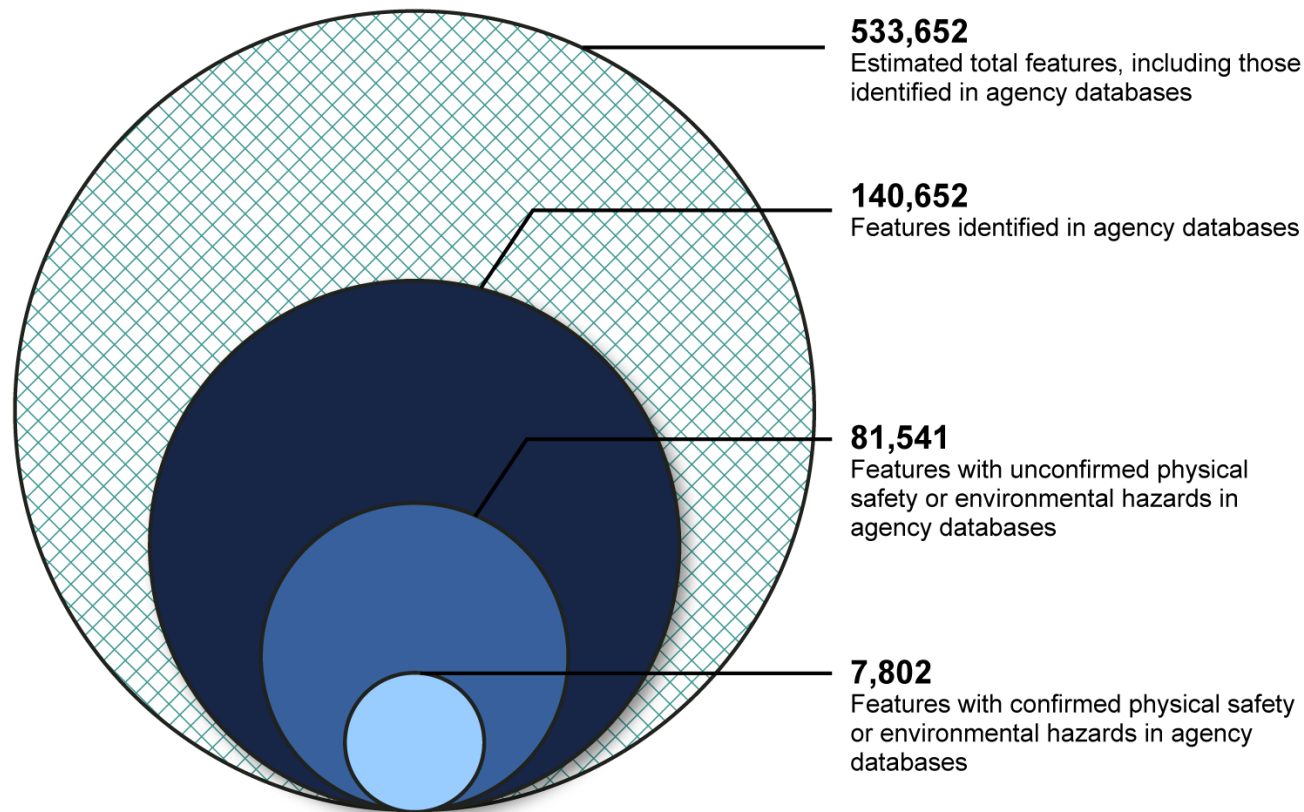
	Estimated Number of Sites to be Inventoried	Estimated Number of Features to be Inventoried	Estimated Time to Complete Inventory	Estimated Cost to Complete Inventory
California	22,730	79,757	568 work months	\$118 million
Nevada	68,564	273,239	1,952 work months	\$86 million
Utah	1,399	14,752	105 work months	\$8 million
<b>Total</b>	<b>92,693</b>	<b>367,748</b>	<b>20 years<sup>1</sup></b>	<b>\$212 million</b>

<sup>1</sup> This inventory time is based on 10 two-person work crews.



# Abandoned Hardrock Mines Report

## GAO-20-238

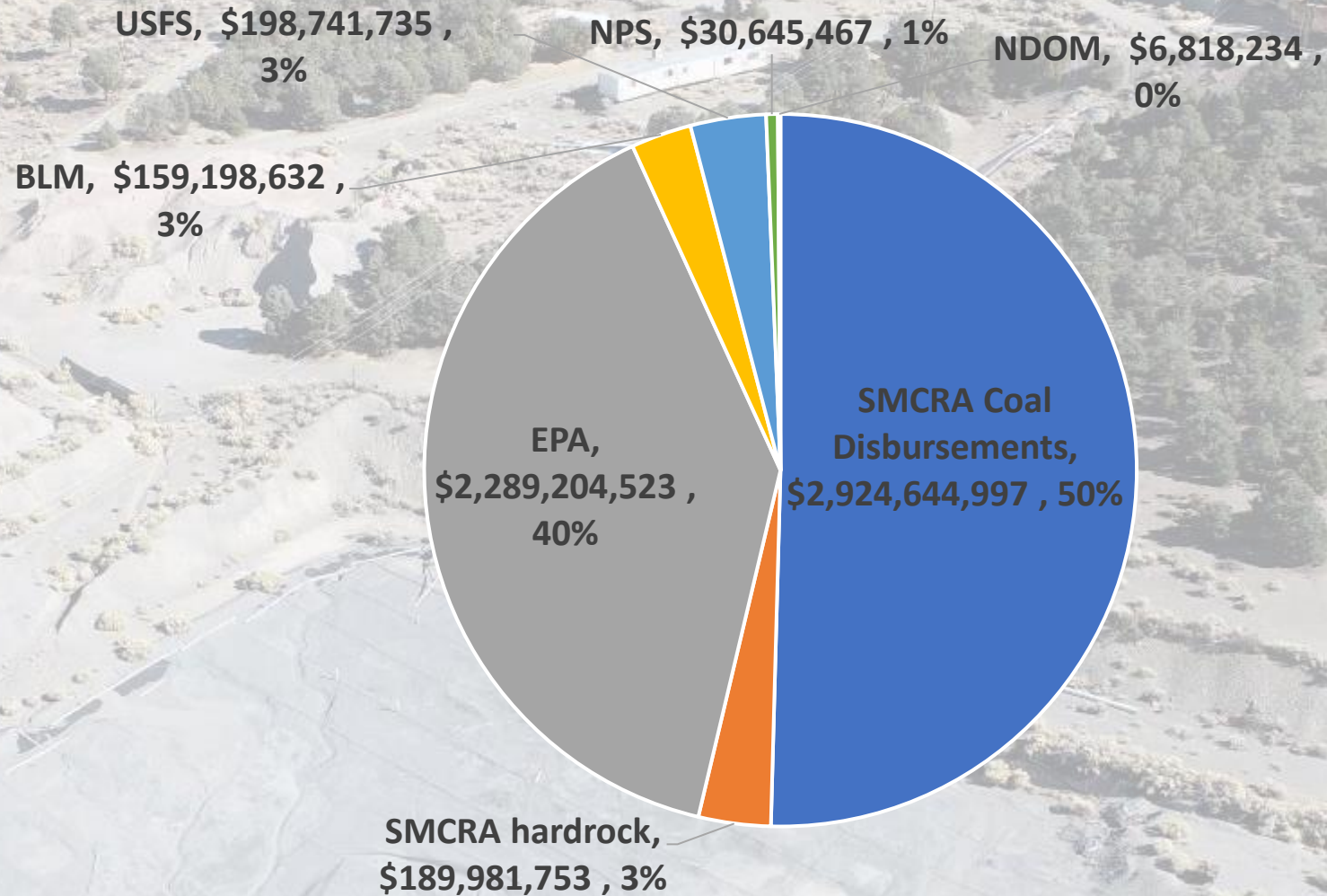


Source: GAO analysis of agency information. | GAO-20-238

- Agencies spent about \$300 million annually from fiscal years 2008 through 2017 to address abandoned hardrock mines, vast majority by EPA
- Agencies in 13 states estimated spending a total of about \$117 million of non-federal funds from fiscal years 2008 through 2017 to address abandoned hardrock mines
- In 2000, an EPA report estimated at least \$35 billion needed for hardrock AML
- Federal and state agencies and stakeholders cited availability of resources and legal liability concerns as factors that limit efforts to address abandoned hardrock mines
  - Need for Good Sam bill



# AML Funding 2008-2017



Sources: GAO Report GAO-20-238; OSMRE Grant Website; NDOM 2018 AML Report



# Funding Shortfall

United States Senate  
WASHINGTON, DC 20510

March 31, 2023

Hon. Patty Murray  
Chair  
Committee on Appropriations  
United States Senate  
Washington, D.C. 20510

Hon. Susan Collins  
Vice Chairman  
Committee on Appropriations  
United States Senate  
Washington, D.C. 20510

Hon. Jeff Merkley  
Chair  
Subcommittee on Interior, Environment, and  
Related Agencies  
Committee on Appropriations  
United States Senate  
Washington, D.C. 20510

Hon. Lisa Murkowski  
Ranking Member  
Subcommittee on Interior, Environment, and  
Related Agencies  
Committee on Appropriations  
United States Senate  
Washington, D.C. 20510

Dear Chair Murray, Vice Chairman Collins, Chair Merkley, and Ranking Member Murkowski:

As you and your colleagues begin to work on the Fiscal Year 2024 appropriations bills, we respectfully request robust funding to support the abandoned hardrock mine reclamation program established by Section 40704 of the Infrastructure Investment and Jobs Act (IIJA).

A recent Government Accountability Office report (GAO-20-238) identified at least 140,000 abandoned hardrock mines under federal jurisdiction and approximately 22,500 that pose risks to the environment, including threats to human health and drinking water supplies. Because these sites are abandoned, there are no responsible parties to take on the cleanup, and the Superfund program only addresses the worst sites, leaving tens of thousands of abandoned mines to continue polluting the environment.

GAO-20-238 also estimated that Federal agencies spend, on average, \$287 million annually identifying, cleaning up, and monitoring abandoned hardrock mine sites. By some estimates, remediating all abandoned mine sites in the United States could cost as much as \$54 billion – at the current rate of funding it would take nearly two centuries to fully address this widespread and pressing issue.

Much more must be done, which is why the Energy and Natural Resources Committee included in its infrastructure bill a \$3 billion authorization to establish a new hardrock mine reclamation program within the Department of the Interior to “inventory, assess, decommission, reclaim, respond to hazardous substance releases on, and remediate abandoned hardrock mine land.” 50 percent of the funding for this program is to be allocated for abandoned mine reclamation projects on federal lands, while the remaining fifty percent is to be used for grants to states and

\$3 Billion authorized in 40704

- \$10 Million allocated between FY22 & 23

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# Washington DC Guidance

Changing leadership equals  
change in:

- Priorities
- Goals
- Funding mechanisms
- Constraints

- AML in Congress and Senate
- Coal vs Hardrock
- Industry vs. AML
- Good Sam
- Anti-mining vs. Pro-mining
- 1872 Mining Law



# Interagency Working Group on Mining Law Reform

Interior Department Established

Multiple working groups, comprised of all Federal agencies

- The IWG's subgroups are:
  - Mining Operations
  - Access to Resources
  - Fiscal Issues (Funding AML)
  - Tribal and Community Engagement
  - Permitting Procedures
  - International Best Practices & Standards

A report with recommendations to Congress by November 15 2022, is delayed, no expected release yet

- Recovery of critical minerals from unconventional sources such as mine wastes, mine influenced waters and coal ash, without exacerbating environmental impacts from these sources
- A fully funded hardrock AML program
- Legal protection for Good Samaritans who voluntarily undertake AML work



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# Good Sam Project Challenges

- PRPs
- Unknown physical and environmental risks
- Land Status
- Size of Features
- Human Interaction
- Wildlife
- Unknown environmental contamination
- Liability
- National Historic Landmarks
- Operation and Maintenance

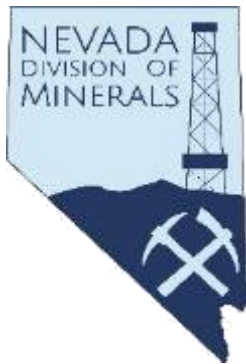




# Recent and Current Nevada AML Project Partners



Nevada Division of  
**STATE LANDS**





# Partners Contributions

- County / City
  - Sherriff deputy
  - Close area to public and help with public notifications
  - Facilitated Media interactions
  - Homeless liaison
  - Permitting
  - Materials/equipment
- State
  - Wildlife Surveys
  - SHPO
  - DOT road closures
  - Contracting
- Federal
  - NEPA
  - Inventory
- NGO's
  - Engineering
  - Expertise





# Post AML Land Use

- Recreation
- Wildlife habitat
- Conservation
- Mining
- Re-processing of materials
- Green Energy





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# Prove Success

- Quick Wins
- Physical Safety
- Easy cleanups
- Containment of mobile contaminants
- Damp projects
- Inventory / Site Investigations
- Partnerships
- Re-process for Critical Minerals
- Limited quid pro quo











# Potential Nevada AML Projects

- Arden
- Rochester Canyon
- Comstock Mercury Clean Up
- Hill Top
- Buckskin
- Big Six Mine
- Gooseberry



# Arden

Early 1900's Gypsum Mine in SW  
Las Vegas

- County and BLM Lands
- Removal of High Walls
  - ~1.2 miles
- Stabilization of East hill
- Revegetation
- Creation of official trail system

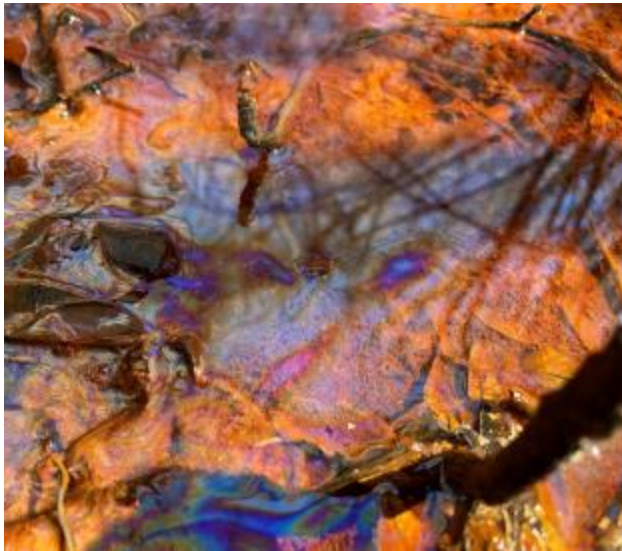




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# Hill Top

- Gold discovered in 1907 and worked until the 1930's
- Plugged adit with seepage containing elevated levels of Fe, Mn, Ni, and As (pH: 3.1 to 3.6)
- Elevated levels of As and Sb were discovered in the tailings material with a pH of 4.32 to 5.0
- A 10-stamp amalgamation mill was built by the Hilltop Milling and Reduction Co. in 1910 which was later turned into a 75-ton cyanidation mill (1914). In 1923, the Hilltop Nevada Mining Co. took over the mines and built a 100 or 150-ton flotation mill.
- Mostly Private lands but interacts with BLM.



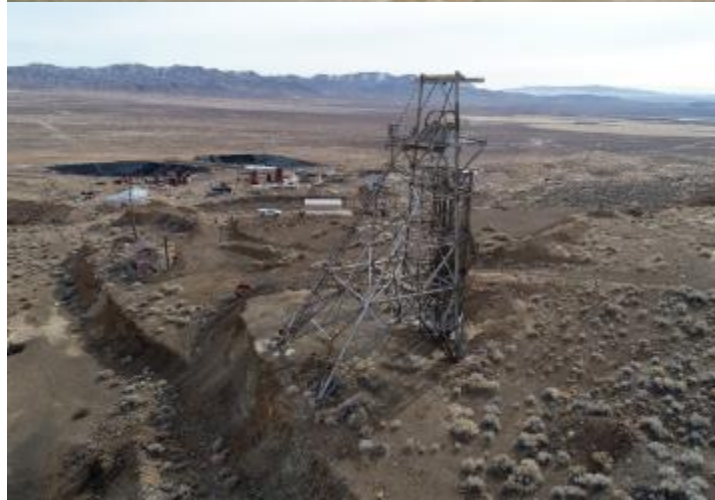


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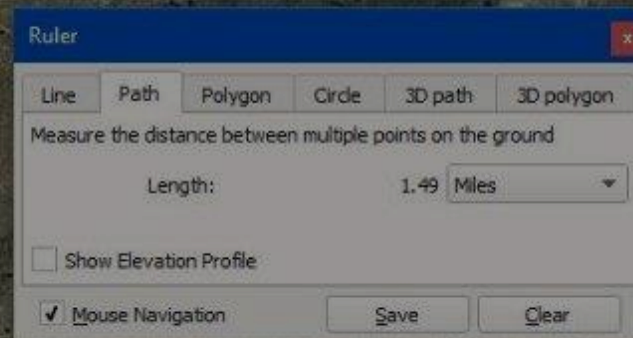
## Buckskin (Douglas County)

1930-1980's gold, silver, and copper mine

- Mix of private and BLM lands
- Bonding in the 2000's with forfeiture in 2013 for mill area
- Remediation work completed on lower tailings in the 2016
- Need of ponds being closed, pit wall stabilization, and mill site remediation
- Candidate for Solar on brownfields with TNC







# Rochester Canyon

Silver and minor gold producing area from mainly 1912-1941

- Produced ~8.7 million ounces of silver between 1912-1934
- Currently largest silver mine in Nevada
- Other sulfides found within ore
  - galena, sphalerite, chalcopyrite, arsenopyrite, tetrahedrite
- Multiple cyanide mills constructed in the canyon

# Good Sam Language

“protect intact landscapes, restore degraded habitat, and make wise management decisions based on science and data.”

“...promotes “conservation” and defines that the term to include both protection and restoration activities.”

“...authorize the BLM to the third-party mitigation fund holders to facilitate compensatory mitigation... This language is intended to ensure that mitigation fund holders have sufficient experience to ensure that they are capable of managing funds.”

“...allow the public to directly support durable protection and restoration efforts to build and maintain the resilience of public lands.”

“...would be available to entities seeking to restore public lands or provide mitigation for a particular action.”