
# Summary of State and Tribal Input re. Potential Hardrock AML Funding Program

**Compiled by**

**Interstate Mining Compact Commission**

**November 2021**

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## Introduction

The Interstate Mining Compact Commission (IMCC) has prepared this summary to inform the efforts of the Office of Environmental Policy and Compliance (OEPC) of the Department of the Interior (DOI) to establish a new national program for the purpose of funding work by the states and Tribes to remediate, reclaim and correct hazardous conditions left behind by past hardrock mining. IMCC obtained this information from a survey it conducted of managers of state and Tribal agencies with interest in hardrock abandoned mine lands (AML) work as well as a series of virtual meetings attended by these managers, Department of the Interior's (DOI) Office of Environmental Policy and Compliance (OEPC), IMCC, and discussions conducted during the 2021 Annual Meeting of the National Association of Abandoned Mine Lands Programs (NAAMLP).

This summary identifies themes that emerge both from the state and Tribal survey responses and discussions among the states and Tribes during virtual meetings. In addition, it presents preliminary recommendations that stem from the themes identified.

On behalf of the states and Tribes, IMCC is grateful for the opportunity to provide their input on the design of this program. Early involvement of the states and Tribes in organizing a program they must carry out is vital to its ultimate success.

## Background

The Infrastructure Investment and Jobs Act of 2021 (the "infrastructure bill") authorizes $3 billion for DOI to establish a "hardrock" AML program, half of which is dedicated to grants to states and Tribes. The money is to be used to "inventory, assess, decommission, reclaim, respond to hazardous substance releases on, and remediate abandoned hardrock mine land." Additional funding may also be available for the same purposes through the FY 2022 federal budget bill which, as adopted by the House, includes $120 million for an "Energy Community Revitalization Program", part of which can be used for hardrock AML work by states and Tribes.

OEPC has been tasked with organizing the program around the infrastructure and budget bill funding. Both the infrastructure bill and budget bill provide DOI with substantial discretion regarding program implementation. The design of this program must weigh a variety of factors and goals. The information below should be helpful to OEPC in identifying and balancing tradeoffs as it designs and implements the program.

## Survey Response Statistics

**38** States and Tribes that submitted survey responses

**19** States and Tribes are already doing or have already done some amount of hardrock AML reclamation work

**28** States and Tribes with at least a partial hardrock AML inventory (may not include costs or a high degree of detail)

**11** States and Tribes that have done hardrock AML work through SMCRA Title IV AML grants

**9** States and Tribes have dedicated, state-level funding for hardrock AML work

**15** State and Tribal agencies whose hardrock AML work is focused on physical safety hazards

**2** State and Tribal agencies whose hardrock AML work is focused on environmental hazards

**6** State and Tribal agencies whose hardrock AML work is focused on both physical safety and environmental hazards

**20** States and Tribes for which restricting funding eligibility to locatable minerals would exclude high priority non-coal AML hazards

## Table of Hardrock AML Sites and Features by State/Tribe

### Known and Estimated Hardrock AML Sites and Features by State/Tribe
**Based on IMCC Survey of States and Tribes Conducted September, 2021**

| State/Tribe | Estimated Hardrock AML Sites/ Features | State/Local Land | Private Land | Federal/Tribal Land | Types of Hazards |
|---|---|---|---|---|---|
| Alaska | Unknown | Unknown | Unknown | Unknown | Unknown |
| Alabama | Unknown | Unknown | Unknown | Unknown | Unknown |
| Arizona | ~200k features | Unknown | Unknown | Unknown | Unknown |
| Arkansas | Unknown | Unknown | Unknown | Unknown | Unknown |
| California (DOC) | Features Known: 71,288; Estimated: 274k; Sites Known: 5,030; Estimated: 19k | 4% | 32% | 64% | 84% physical; 11% environmental |
| California (DTSC) | 47k features | 4% | 32% | 64% | 84% physical; 11% environmental |
| California (SLC) | 1,759 features | 100% | N/A | N/A | 30% land w/ physical; 6% land w/ environmental |
| California (Water Boards) | ~67 sites in Central Valley Region; ~50 sites in SF Bay Region; unknown elsewhere | 4% | 32% | 64% | 84% physical; 11% environmental |
| Colorado | ~46k estimated features; >40k estimated sites | ~1% | ~50% | ~49% | ~45k physical; ~1,000 environmental |
| Idaho | Unknown: likely hundreds to a few thousand sites/features | Unknown | Unknown | ~5,035 according to GAO report | Several hundred physical; A few dozen environmental |
| Illinois | Unknown | Unknown | Unknown | Unknown | Unknown |
| Indiana | Unknown | Unknown | Unknown | Unknown | Unknown |
| Iowa | Unknown | ~10% | ~90% | Unknown | Physical |
| Kansas | Unknown | Unknown | Unknown | Unknown | Unknown |
| Kentucky | Unknown | Unknown | Unknown | Unknown | Unknown |
| Maine | ~579 features (preliminary estimate) | Limited | Most | Limited | Unknown |
| Maryland | Unknown | Some | Most | Some | Unknown |

| | | | | | |
|---|---|---|---|---|---|
| Michigan | 700+ sites | Limited | Most | Limited | Unknown |
| Minnesota | Unknown | Unknown | Unknown | Unknown | Unknown |
| Mississippi | Unknown | Most | Some | Unknown | Unknown |
| Missouri | Unknown | Unknown | Unknown | Unknown | Unknown |
| Montana | Unknown | 0 | 50% | 50% | 60% physical; 30% environmental |
| Navajo Nation | Unknown | N/A | N/A | 100% | Unknown |
| Nevada | 200k-300k features; 40k-50k sites | <1% | ~32% | ~67% Federal / <~1% Tribal | 40k-50k physical; 1000's environmental |
| New Hampshire | 0 | N/A | N/A | N/A | N/A |
| New Jersey | 431 sites | 45.5% | 54% | 0.50% | Unknown |
| New Mexico | ~20,069 features (BLM estimate) | Unknown | Unknown | Unknown | ~6,000 features (including physical and environmental) |
| New York | ~Several dozen sites | Some; number unknown | ~Several dozen | 0 | Unknown |
| North Carolina | At least 130 sites/features | Maybe a few | The vast majority | Very few | Estimate 10-15% will require reclamation |
| North Dakota | N/A (all believed to be reclaimed) | N/A | N/A | N/A | N/A |
| Ohio | Unknown | Unknown | Unknown | Unknown | Unknown |
| Oklahoma | 25,044 sites | Unknown | Unknown | Unknown | Unknown |
| Oregon | 8,000 features | 0 | 25% | 75% (Federal) | 200 environmental |
| Pennsylvania | Unknown | Unknown | Unknown | 0 | Unknown |
| South Dakota | 900 sites | 0 | 78% | 22% (USFS) | Mostly physical; Some environmental |
| Tennessee | Unknown | Unknown | Unknown | Unknown | Unknown |
| Texas | 12,000+ sites | 0 | 100% | 0 | All physical; No known environmental |
| Utah | At least 34k features | Unknown | Unknown | 70% (Federal) | Only physical inventoried |
| Virginia | At least 4,000 features; 3,300 sites | <1% | 75% | 24% | 1,051 physical; 228 environmental |
| Washington | Unknown | Unknown | Unknown | Unknown | Unknown |
| West Virginia | A few sites inventoried | Unknown | Unknown | Unknown | Unknown |
| Wyoming | ~3,000-4,000 features; ~1,500 sites | 0 | 25% | 75% | 90% physical; 10% environmental |

## Table of Hardrock AML Inventory Status by State/Tribe

### Status of Hardrock AML Inventory Efforts by State/Tribe
**Based on IMCC Survey of States and Tribes Conducted September, 2021**

| State/Tribe | No Inventory | Fairly Comprehensive Inventory | Partial Inventory | Inventory Includes Cost Estimates | Cost Estimates are Kept Up to Date | Some Inventory through SMCRA Title IV (e-AMLIS) |
|---|---|---|---|---|---|---|
| Alaska | | | | | | ✓ |
| Alabama | ✓ | | | | | |
| Arizona | ✓ | | ✓ | ✓ | | |
| Arkansas | | | | | | |
| California (DOC) | | | ✓ | | | |
| California (DTSC) | | | ✓ | | | |
| California (SLC) | | ✓ | | ✓ | ✓ | |
| California (WB) | | | ✓ | | | |
| Colorado | | | ✓ | ✓ | | |
| Idaho | | | ✓ | | | |
| Illinois | | | ✓ | ✓ | | |
| Indiana | ✓ | | | | | |
| Iowa | | | ✓ | | | |
| Kansas | | | | | | ✓ |
| Kentucky | ✓ | | | | | |
| Maine | | | ✓ | | | |
| Maryland | | | ✓ | | | |
| Michigan | | ✓ | | | | |
| Minnesota | ✓ | | | | | |
| Mississippi | | | ✓ | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| Missouri | | | ✓ | | | |
| Montana | | | ✓ | | | |
| Navajo Nation | | | ✓ | | | |
| Nevada | | | ✓ | | | |
| New Hampshire | ✓ | | | | | |
| New Jersey | | | ✓ | | | |
| New Mexico[1] | | | ✓ | | | |
| New York | ✓ | | | | | |
| North Carolina | | | ✓ | | | |
| North Dakota | ✓ | | | | | |
| Ohio | ✓ | | | | | |
| Oklahoma | | ✓ | | | | |
| Oregon | | | ✓ | | | |
| Pennsylvania | | | ✓ | | | |
| South Dakota | | | ✓ | | | |
| Tennessee | ✓ | | | | | ✓ |
| Texas | | ✓ | | ✓ | ✓ | |
| Utah | | | ✓ | | | |
| Virginia | | ✓ | | | | |
| Washington | | | ✓ | | | |
| West Virginia | ✓ | | | | | |
| Wyoming | | ✓ | | ✓ | | |
| **Count** | **11** | **6** | **23** | **6** | **2** | **3** |

[1] New Mexico has a comprehensive inventory for abandoned uranium mines.

## Major Themes and Recommendations

### Funding Related Issues

There are several states and one Tribe with existing hardrock AML programs and funding, but most currently have very little if any dedicated staff or funding. For many states and Tribes, especially those with limited existing programs, the newly available funding will require building the program capacity, including staff, necessary to effectively implement a hardrock AML program. States and Tribes with relatively robust existing programs will also need to increase staff to use increased funding. Given the reality of existing capacity, it will be important to set reasonable short-term expectations for how quickly states and Tribes are able to implement the new program. It will also be important for the program funding mechanism to accommodate both robust and developing programs. Using a combination of approaches will help to accommodate the variety of state/Tribal circumstances.

#### ⇒ *Minimum Program Funding*

All but a few states and Tribes have historically lacked funding to establish a program dedicated to hardrock AML. States and Tribes that have not previously been able to address hardrock AML will initially need to focus on acquiring program resources and conducting an inventory of AML hazards. States and Tribes with existing programs will also need to adapt to efficiently utilize increased funding. To build program capacity, state legislatures, budget, and personnel officials must be convinced that this program is worthy of investment of the required state resources, which are often quite scarce. Certainty that federal funding can be expected to continue is critical in making the case for building hardrock AML programs at the state level. Establishing a stable, minimum level of funding that each eligible state and Tribe can expect to receive each year will provide much needed funding certainty. Minimum program funding will also provide an equitable funding mechanism, providing all eligible states and Tribes with the ability to make progress on their highest priority hardrock AML work.

### ⇒ *Competitive Grant Funding*

States and Tribes with more robust existing programs and those that already have identified "shovel-ready" projects need to be able to make immediate progress. To that end, some amount of this funding should be made available to states and Tribes that have identified high-priority AML projects and the capacity to address them in the short term. A competitive grant system that would allow these states and Tribes to obtain grants for remediation of their highest priority projects should also be included as part of the funding approach.

### ⇒ *Ad Hoc and Emergency Funding*

There are several states/Tribes for which the amount of AML impacts may not be sufficient to justify maintaining a full-scale hardrock AML program or receiving minimum program or competitive grant funding, but that nonetheless do have AML hazards in need of correction. Therefore, the program should also make grants available on an emergency and ad hoc basis to help states and Tribes to fund discrete projects from time to time, as needed. "Emergency" funding would here generally mean funding that is granted for the purpose of a suddenly manifesting AML event such as subsidence or a landslide. "Ad hoc" would refer to non-emergency funding that is granted on a case-by-case basis at DOI's discretion to support certain AML projects or activities by state or Tribal agencies.

## State and Tribal AML Inventories

An inventory of AML sites and features in need of being addressed is essential to planning and carrying out any significant effort to address these hazards. Of course, resources devoted to inventory development are resources not devoted to the actual correction of AML hazards. Existing inventories reflect a balance between these priorities that each state or Tribe has made based on its needs and resources. Accordingly, the extent of existing inventories of hardrock AML sites/features varies greatly among the states and Tribes. There is no standardization of the types of information recorded in existing inventories across states and in many cases, there is no effort to keep information that is recorded current. While a few states have relatively large, detailed inventories, most have

little to no existing inventory of hardrock AML sites/features. A federal program should recognize and accommodate the varying levels of sophistication among existing inventories and varying priorities of state and Tribal AML work.

### ⇒ *Avoid an Inventory-Based Funding Distribution Method in the Short Term*

The completeness and sophistication of hardrock AML inventories is so varied across the states and Tribes that basing funding on state and Tribal inventories is not currently practical. Much work to compile and standardize state and Tribal inventories would be necessary before they could be used for funding purposes or as a basis for making sound comparisons between states and Tribes.

### ⇒ *Allow Funding to be Used on Inventorying, but Don't Require It*

States and Tribes that already have robust hardrock AML programs desire to use a greater portion of the resources the new program would provide on actual reclamation work. They also desire the flexibility to update existing inventories on a progressive basis. It is important that inventory work not be over-emphasized to the detriment of performing actual reclamation and remediation work.

Many of the states and Tribes with more limited involvement in hardrock AML consider inventory and assessment work to be the highest initial priority. Through their inventory efforts, states and Tribes can gain the understanding of the scope and character of hardrock AML issues in their jurisdiction that is necessary to effectively plan the AML work that needs to be done. States and Tribes whose existing inventory is minimal or non-existent welcome guidance as to what an inventory should include. Effective guidance requires consideration of the basic purposes programs should be attempting to achieve through their inventorying efforts.

As stated above, an inventory is a tool that is essential to planning the work to be done in a logical sequence according to state and Tribal priorities. Inventories may also be important in providing policymakers with information on how much overall progress is being made and how much more funding is needed. For these reasons, the use of funding under this program for inventory work should be encouraged, consistent with other state and Tribal priorities. However,

as noted above, the experienced hardrock AML programs caution against too much focus on inventory efforts. They have found that an inventory that is sufficient to enable advance prioritization and planning for several years worth of hardrock AML projects is an adequate, efficient way to achieve results with limited hardrock AML funding.

### ⇒ *Provide Inventory "Seed" Funding Where Needed*

A number of states and Tribes have no existing hardrock AML inventory but are aware of hardrock AML impacts in their jurisdictions and are interested in receiving funding to set up their hardrock AML programs. States and Tribes with no existing inventory will need funding to begin developing an inventory to help them plan their future program activities, especially if minimum program funding is made contingent on a demonstration of need based on some level of hardrock AML inventory. This could be accomplished by providing some amount of "seed" money to states and Tribes that could be used to do the basic inventory assessment that is needed.

## Flexibility of Funding and Priorities

The challenges posed by AML hazards vary widely across the country. The programs individual states and Tribes have developed to address these challenges also vary widely, and the way each program conducts its business has evolved over time to suit their unique needs. There may be as many different challenges in running an AML program as there are states and Tribes. Each state or Tribe will have its own considerations in selecting and conducting AML projects and prioritizing program activities. Under these circumstances, the states and Tribes themselves are in the best position to judge how funding should be allocated across various AML program activities. For that reason, many survey responses note the importance of building flexibility into the grant funding provided by this program. There are several dimensions on which flexibility will be important.

### ⇒ *Allow Funding to be Used on a Variety of Program Activities*

Operating a successful AML program requires more than construction of reclamation projects. Successful projects require advance site characterization work, design and engineering work to develop construction plans, construction management, and post-construction operation and maintenance needs. Beyond these project-related functions, a hardrock AML program must engage in inventorying, planning, contracting, complying with regulations, and generally administering the program. States and Tribes should be given a high degree of flexibility in allocating funding to program activities. Strict requirements for how much funding can be spent on a given activity would be difficult to develop given the variation in state and Tribal needs. Overly strict requirements will likely cause difficulties for some states and Tribes.

### ⇒ *Allow States and Tribes to Pursue their Respective Reclamation Priorities*

Human health and safety is overwhelmingly considered the primary priority in selecting projects among the survey respondents whose primary responsibility is reclamation work (some participating agencies are focused nearly exclusively on water quality issues by design of their programs). Beyond that, there are a variety of ways states and Tribes would like to be able to weigh the selection of one high-priority site over another. Some examples of factors include proximity to communities, scale of impact, co-benefits to environment, economic benefits, and environmental justice. States and Tribes with more limited hardrock AML experience might welcome guidance from DOI as to how various site characteristics should be weighed in project selection. However, a state or Tribe that has developed specific criteria for weighing priorities based on its respective expertise, circumstances, and goals should be allowed to continue to prioritize hardrock AML work according to its preferred scheme of priorities.

### ⇒ *Allow States and Tribes to Determine Appropriate Reclamation Standards*

As discussed above, each state and Tribe faces unique circumstances and the types of impacts that need to be addressed vary widely. A nationwide standard for what constitutes acceptable “reclamation” in every circumstance may not be possible. The individual states and Tribes are best suited to determine the appropriate goals for correcting the AML hazards they face. They should have

flexibility to establish their own standards for reclamation success. The goals need to be flexible enough for states and Tribes to achieve other internal priorities and state/Tribe-specific criteria, such as site redevelopment in conjunction with the hardrock AML work they perform. States and Tribes should also be allowed to address whether some portion of the reclamation of a site can be accomplished through partnerships with NGOs or through remining by industry.

### ⇒ *Allow Funding to be Used on All "Non-Coal" AML Sites*

The definition of "hardrock" AML is not clear in the proposed legislation. Many survey responses indicate that using a relatively limited "locatable minerals" definition of hardrock would exclude some high-priority AML hazards in their jurisdictions. For that reason, these respondents advocate extension of "hardrock" AML eligibility under this program to all non-coal AML sites. A broader definition will allow more participation and will avoid excluding worthy AML priorities that are very hazardous to human health.

## Efficient Administrative Processes

Efficient administrative processes will increase the program's positive impact by maximizing the amount of funding that can be used for correction of AML hazards. To that end, federal processes should be streamlined where possible, state and Tribal processes should be relied upon where they are already strong, and clear guidance should be provided where necessary.

### ⇒ *Emulate OSMRE's Authorization to Proceed Process*

The states and Tribes with many decades of experience with SMCRA Title IV coal AML programs generally believe that the Office of Surface Mining Reclamation and Enforcement (OSMRE) has developed a good process for overseeing and approving individual AML projects over its 40 plus years of administering the SMCRA Title IV coal AML program. Under that process, states and Tribes have wide latitude to select individual AML projects but still submit applications for an Authorization to Proceed (ATP) to OSMRE, which verifies that the project fits the parameters of the program and then gives the authorization, after which funds for the project can be drawn down. A process like this may be

helpful in administering the new hardrock AML funding. Emulating OSMRE's process would be especially helpful to the many states and Tribes that are already comfortable with OSMRE processes in administering their SMCRA Title IV coal AML programs, which have been streamlined over the 40 plus years of their use in the SMCRA context. However, it should be noted that there are many states with hardrock AML impacts that do not have SMCRA Title IV coal AML programs and that whatever process is chosen for the new hardrock AML program needs to work well for all states and Tribes' efforts to address hardrock AML hazards.

### ⇒ *Use Categorical Exclusions Where Appropriate*

Streamlining NEPA review and similar federal processes would be helpful in reducing administrative costs and achieving results efficiently. Many AML reclamation projects tend to follow very similar patterns, meaning that environmental assessments for each project often repeat the same or a similar set of themes over and over. Projects that address physical safety hazards often have little or no environmental impact. For these reasons, many AML projects under the new hardrock program should be good candidates for categorical exclusions. Categorical exclusions have been utilized to provide efficiency in other AML contexts, such as the SMCRA title IV AML program. Where categorical exclusions are not feasible, consideration should be given to developing a programmatic environmental impact statement for the hardrock AML program, or discrete portions thereof, which might allow simplified step-down NEPA analysis to be conducted for individual projects.

### ⇒ *Limit the Potentially Responsible Party (PRP) Search Process*

Where possible, special attention should be given to avoiding an inordinately time- and resource-intensive process of searching for PRPs associated with AML sites. Experience has shown that PRP inquiries can take years to complete and rarely result in finding a PRP or gaining any new funds, making the process a net loss. There should be a simplified process for verifying that a given AML site is truly abandoned, without a PRP. The full CERCLA PRP process should be avoided if at all possible. Consideration should be given to what has been proposed in past hardrock AML bills, in which a site that was mined before a specified date is presumptively a true AML site for which a full PRP search is unnecessary. A similar presumption might also be appropriate for "innocent"

surface landowners who never had any connection with mining on a site but could nonetheless be considered a PRP.

### ⇒ *Ensure Good Communication with DOI and Among States and Tribes*

As the new hardrock AML program continues to develop, the states and Tribes would benefit greatly from ongoing, periodic sessions with DOI and with other states and Tribes to continue to discuss priorities, plans and program development issues. There needs to be a platform for the states and Tribes to receive guidance from DOI and to share their experiences in implementing the program with DOI as well as with one another.

## Obstacles to Water Quality Work

Improving the quality of water impacted by hardrock AML is among the most important benefits of AML work. It provides great environmental as well as health and economic benefits, and many states/Tribes consider it a high priority. While any kind of AML reclamation and remediation work comes with difficulties, there are additional obstacles in the way of doing water quality work.

### ⇒ *Allow Funding to be Dedicated to Long-Term Operation and Maintenance*

Treating water impacted by pollution from hardrock AML sites is different than many other types of AML work in that treatment systems require ongoing operation and maintenance, often over the course of many years. Generally speaking, states and Tribes will not construct a water treatment system unless they can be certain funds will be available for the long-term operation and maintenance of the system. Water treatment trusts are a common way of providing long-term funding. It would be helpful to allow some portion of the funding under this program to be dedicated to trust funds for long-term operation and maintenance of water treatment systems.

### ⇒ *Consider the Need for Good Samaritan Liability Protections*

Under the Clean Water Act, states and Tribes may be held liable for any continuing pollution of a water resource after they have conducted a water treatment project, despite the fact that they were not involved in creating the original pollution and that the project improved water quality. Concern about incurring this liability may prevent agencies from performing beneficial water quality projects. There is a great need for legislation to provide targeted, carefully crafted liability protection, or "Good Samaritan" protections, to remove this obstacle to water treatment work.

## Highlights from State and Tribal Surveys/Input

### Alabama –

- Most common hardrock AML mineral impacts: Bauxite and Kaolin mining
- Most common types of hardrock AML problems: eliminating highwalls, regrading, and revegetating.
- AL DOL handles permitting and regulation of all non-fuel mineral mining and has jurisdiction over AML work.
- Alabama has no inventory of hardrock AML sites.
- Recommendations:
    - Guidance on the goals of and baseline standards for inventorying would be helpful.
    - Need clarity on what are considered "hard rock" minerals.

### Alaska –

- Most common hardrock AML mineral impacts: underground gold mining
- Most common types of hardrock AML work: closing mine openings and other physical safety related work.
- Alaska does a relatively limited amount of hardrock AML work through SMCRA Title IV AML funding.
- Alaska does not have a hardrock AML inventory and creating a comprehensive inventory would be very expensive.
- Recommendations:

- It is important to set reasonable expectations for inventory work; it will take several years to complete and will be expensive.

**Arizona –**

- ADEQ's AML work is focused on water impairments, especially streams listed under CWA and impacted by copper, lead, cadmium, selenium, zinc, and PH in some cases.
- Most common hardrock AML mineral impacts: gold, silver, and copper mines from 19th and early 20th century.
- Most common types of hardrock AML problems for ADEQ: plugging discharging adits, closing dry shafts and adits, regrading tailings/waste rock, and capping tailings.
- Safety-related AML work is handled by AZ state mine inspector, but they have very limited funding.
- ADEQ has a very limited inventory, related mostly to impaired streams.
- Limited funding is the main obstacle to ADEQ's AML work.
- Recommendations:
  - Concerns about long-term liability for water treatment work are a major obstacle; Good Samaritan protections are needed.
  - States/Tribes should be given flexibility in how they spend their funding.
  - Funding should be available for administrative work and for inventorying.
  - Matching funds should be considered as part of the distribution scheme.
  - Encourage consideration of wetland restoration, solar development, and other beneficial uses as part of AML work.
  - It will be important to consider operation and maintenance requirements and enforcement mechanisms.

**Arkansas –**

- Most common hardrock AML mineral impacts: historic bauxite and barite mines.
- Most common types of hardrock AML problems: high and low pH water impacts from bauxite and barite mines, closing mine openings, elimination of unsafe highwalls, revegetation.

- Remediation and treatment of polluted water are addressed through the Office of Water Quality.
- There is no funding to address mine openings, unsafe highwalls, and need for revegetation.
- Arkansas is aware of some mine hazards and mine impacts, but there is no comprehensive inventory due to staff and funding limitations.
- Recommendations:
    - The current SMCRA Title IV Coal AML Program could provide a framework or starting point for a hardrock AML program. However, with the widely variable geology and extent of mining of the states, the program will have to be flexible to accommodate the various scenarios that exist in the states. It certainly cannot be a "one-size-fits-all" program.

### California Department of Conservation –

- There are several California state agencies with jurisdiction over AML impacts of various kinds; DOC's AML work focuses on physical safety hazards.
- DOC has a very detailed but incomplete inventory of physical hazards at AML sites.
- Most common hardrock AML mineral impacts: gold, silver, copper, iron, and mercury, as well as quarries and gravel pits.
- Most common types of hardrock AML problems: shafts and adits, dredge and placer mines, and unstable dams, as well as downstream and watershed impacts, e.g., related to use of mercury during gold mining.
- State definition of AML does not differentiate hardrock; it just covers "abandoned mines" and includes recently defunct mines, but only those with no / inadequate financial assurance.
- Funding for AML work comes from a state level fee on gold and silver, cooperative agreements with federal agencies, and sometimes state appropriations by the legislature.
- Recommendations:
    - Provide funding for inventorying throughout the funding lifecycle of this program.
    - Consider that not all projects are shovel ready; many will require significant amounts of time to prepare, sometimes several years.

- Consider providing separate funds for physical safety work, environmental work, and operation and maintenance.
- Consider providing funding for non-locatable mines that are high safety risk.

### California Department of Toxic Substances Control –

- DTSC's AML work focuses on cleaning up environmental hazards to reduce risk to human and ecological receptors, primarily through soil exposure pathways, and also to reduce the potential to impact air, surface water, and groundwater.
- Most common hardrock AML mineral impacts: arsenic, gold, copper, and mercury.
- Most common hardrock AML problems/work: acid mine drainage, removing, capping, or placing mine waste and tailings into containment cells.
- No dedicated funding for AML. AML work is funded with State orphan funds, which must be shared with other types of orphan sites and State portion of NPL sites, or by responsible/liable landowners with the financial means.
- Inventory of 47,000 is based on USGS's Mineral Resources Data System (MRDS) database, which includes duplicate entries, inaccurate locations, and unknown extent of environmental impacts. Very few have been ground-truthed and even fewer have costs.
- Recommendations:
  - Provide some level of guaranteed minimum funding, which will allow states to create dedicated positions.
  - Allow funding to develop database and site prioritization.
  - Provide funding for ongoing operation and maintenance.
  - Allow funding to be spent at Superfund sites to help states cover their portions of costs, which can be substantial.
  - Avoid using a strict definition of "hardrock AML" in establishing project eligibility.
  - Allow states (or multiple agencies within states) to develop their own prioritization schemes specific to their needs.

### California State Lands Commission –

- Most common hardrock AML mineral impacts: underground gold and silver mining, some amount of lithium, borates, manganese, iron, and aggregates.
- Most common types of hardrock AML work: mine adits and shafts, some regrading of highwalls.
- SLC has a comprehensive, detailed database.
- 100 parcels of land out of about 1,308 in SLC jurisdiction contain AML features.
- SLC cooperates with DOC to leverage limited AML funding.
- Recommendations:
    - Consult heavily with leading agencies and staff with AML experience in the states.
    - Provide funding that states can utilize on a case-by-case basis.

### California Water Boards –

- Most common hardrock AML mineral impacts: water pollution from gold, copper, and mercury.
- Most common types of hardrock AML work: investigating, then eliminating and/or treating point-source discharges of contaminants to State and Federal waters, including isolating and containing mine waste and tailings, and assessing and mitigating mercury movement throughout watersheds.
- Funding is very limited; there is no dedicated funding for hardrock AML work.
- Five of the nine regional water boards are actively addressing abandoned hardrock mines impacting water quality.
- The most significant water quality impacts are known to occur in the Central Valley, Lahontan, North Coast, and San Francisco Bay regions.
- An estimated 3,200 miles of river segments and 322,000 acres of lakes, and the entirety of State and Federally protected San Francisco and Tomales Bays, are impacted by abandoned mine discharges.
- Central Valley, Lahontan, and San Francisco Bay regions have strong inventories, but the rest of the regions are not able to maintain an inventory. None of the Regional Water Quality Control Boards maintain inventories with cost estimates and site characterizations.
- The Central Valley and San Francisco Bay region maintain a list of abandoned mines with known or potential water quality impacts, including

information on each one. The San Francisco Bay region has completed an inventory and prioritized mines by impact and threat to water quality.

- Recommendations:
    - Funding prioritized for reclamation and remediation work should be prioritized over inventorying.
    - Consider placing a cap on the percentage of funding that can be used for inventory work in states that already have an inventory.
    - It is critical that funding be provided for ongoing operation and maintenance.
    - Consider requiring states to identify a single agency to coordinate the state's efforts.
    - To ensure all types of hazards are being addressed, consider identifying percentages of funds to be available for various kinds of projects and give priority to sites that have multiple hazard types.
    - In addition to proposals for site specific work, consider proposals for regional-scale impacts.
    - Ensure good communication between state/Tribal and federal agencies, perhaps through annual working sessions to discuss priorities and plans.
    - Provide criteria related to PRPs that avoids as much as possible the need for expensive, time-consuming PRP search processes.
    - Work toward getting a federal good Samaritan law in place to provide protections to state agencies against long-term liability from water treatment.
    - Reduce constraints on environmental cleanups of AML sites such as inordinate focus on point source discharge and use of impractical requirements for water quality improvements.
    - Ensure that mercury is considered an eligible mineral for this funding.
    - Consider using a definition of "mining waste" rather than "locatable" minerals as the basis for eligibility of mineral impacts.
    - Allow states to apply to conduct projects on federal land if the managing federal agency approves.
    - Avoid using a strict definition of "hardrock acid mine drainage" in establishing project eligibility.
    - Consider allowing funding to be spent at Superfund sites to help states cover their portions of costs, which can be substantial.

**Colorado –**

- Most common hardrock AML mineral impacts: precious metals, also significant uranium impacts.
- Most common types of hardrock AML problems: Physical safety hazards are the most common type of problem, with remediation of water pollution second. From a budgetary standpoint, about 50% of funding goes to safety closures and 50% goes to water pollution.
- The inventory was created in 1980 and continues to be updated. It is not and was not intended to be comprehensive; inventorying is done "progressively".
- Colorado has a robust AML program that relies heavily on local contractors and partnerships.
- Recommendations:
    - Consider a hybrid system for distributing funding that incorporates both a base level/minimum level of funding and a competitive grant. Competitive grants will allow states with existing staff and shovel ready projects to make efficient progress.
    - Consider ways to address CWA liability, which prohibits states from conducting water treatment work at many high priority sites.
    - Consider how to handle authorizations in a clear, efficient way, e.g. NEPA on federal lands.
    - For safety closures, consider a grant awards process like that used by OSMRE, with authorizations to proceed and categorical exclusions.
    - Avoid too much focus on inventorying, at least in states with adequate current inventories to plan work 2-3 years ahead.
        - Progressive inventorying is more practical than a concerted effort to produce a "comprehensive inventory". It is more important to get money on the ground to address hazards.
    - Avoid excessive PRP search process, which rarely produces more funding and is very expensive and time consuming. Criteria like "pre-law" in reference to CERCLA would be a better way to establish which sites are eligible.

**Idaho –**

- Most common hardrock AML mineral impacts: underground gold, silver, lead, zinc, and copper.
- Most common types of hardrock AML problems: closing dangerous mine openings.
- There is no formal inventory or cost estimates of AML hazards, but there is an Idaho geologic survey list that includes historic mines.
- Water treatment projects can't be attempted due to liability concerns.
- The Department of Lands is the regulator for surface mining, but also has jurisdiction over AML work.
- Funding is limited, but some is available through partnerships with federal and state agencies.
- Recommendations:
    - Prioritize sites within 1 mile of recreation sites/public roads.
    - Provide Good Samaritan protections or provide funding to conduct full CERCLA clean ups.
    - Unsecured mill tailings that could be mobilized by storm water or surface waters could be prioritized for environmental hazards.

**Illinois –**

- Most common hardrock AML mineral impacts: lead, zinc, fluorite, clay, and aggregates mining.
- Most common types of hardrock AML problems: dangerous highwalls, mine openings, and hazardous mining equipment.
- Illinois has a listing of non-coal AML sites in need of reclamation, but cost estimates are not kept up to date.
- 2% of annual coal AML grant funds are allowed to be used for non-coal projects.

**Indiana –**

- Most common hardrock AML mineral impacts: limestone/aggregates mining.
- Most common type of hardrock AML problem: dangerous highwalls.
- Indiana does not have a non-coal inventory.

**Iowa –**

- Most common hardrock AML mineral impacts: lead-zinc mines.
- Most common type of hardrock AML problem: subsidence.
- Use of coal AML funding at non-coal sites is limited to emergency subsidence events.
- There is no comprehensive inventory of non-coal AML sites with cost estimates, but there is a list of limestone quarries, gravel pits, and gypsum mines.
- Recommendations:
    - Use a system that allows for funding of emergencies.

**Kansas –**

- Most common hardrock AML mineral impacts: lead-zinc mines.
- Most common type of hardrock AML problem: subsidence.
- A portion of each year's coal AML funding is devoted to non-coal AML work.
- There is no comprehensive inventory of lead and zinc mines, but there is a list of known sites. Abandoned limestone quarries may also need to be included in a comprehensive hardrock inventory when one is developed.
- Recommendations:
    - Funds should be made available for occasional emergency events.

**Kentucky –**

- Most common hardrock AML mineral impacts: limestone, sand and gravel, tar sand, and rock asphalt.
- Kentucky has a very small amount of AML budget devoted to hardrock bond forfeiture sites.
- There is no inventory of hardrock AML sites.
- Recommendations:
    - Expand eligibility to sites other than locatable minerals AML sites if they are high priority safety and health hazards.

**Maine Department of Environmental Protection –**

- There is some amount of inactive, pre-regulation hardrock mines in Maine, but there is no specific inventory at this time.

### Maine Geologic Survey –

- Most common hardrock AML mineral impacts: metal sulfides, silver, feldspar, pegmatite minerals, and gemstones. There are also significant impacts from limestone, granite, and slate quarrying.
- Most common types of hardrock AML problems: mine openings and highwalls.
- There is no systemic funding system for addressing abandoned mines, but there has been some work done at local level.
- There is a database of mines and quarries, but it does not include cost information, so it is not an effective AML inventory.
- Recommendations:
    - Provide small "scoping" grants to states like Maine who need to get oriented to hardrock AML in the state; this will ensure smaller states are included.
    - Use remaining funding for competitive grants for larger projects.
    - Do not require matching grants for states like Maine.
    - Allow flexibility to contract AML work to consultants.
    - Keep in mind that Maine will have to contend with the high amount of control landowners have over their property, which requires landowner approval and input on anything that would be done on private land.
    - Make environmental justice and accountability important considerations of this program; set an example of good stewardship.
    - Avoid applying the same metrics and ways of thinking about hardrock AML in different areas of the country; New England is very different than the West.

### Maryland –

- Most common hardrock AML mineral impacts: copper, and chromite mines and likely other locatable mineral mines.
- There is no dedicated hardrock AML program and no hardrock AML inventory.
- Recommendations:
    - Designating some funding for "minimum program states" should be part of the hardrock AML program.
    - The grants should be based on a funding formula based on unfunded inventory or historical production rather than competitive grants.

- Include quarries as eligible types of AML impacts.

**Michigan –**

- There is no formal hardrock AML program in Michigan, but there are several state agencies that are concerned with hardrock AML issues.
- Most common hardrock AML mineral impacts: copper, iron ore, limestone, and gypsum.
- Most common types of hardrock AML problems: unsecured mine openings, subsidence, and some water quality issues.
- There is a limited AML inventory that was completed in the late 1990's, but there are questions as to its level of accuracy.
- Michigan was explicitly exempted from the general mining law of 1872, so minerals in the state are not "locatable" in the strict legal sense.
- Funding for AML is very limited.
- Recommendations:
  - The program should be open to states like Michigan that have historical hardrock mining impacts but are not subject to the general mining law of 1872.
  - It should be kept in mind that many AML sites in Michigan will require coordination with SHPO/THPO.
  - Encourage funding to be used for adaptive reuse of AML sites, linking remediation with rural economic development, ecological remediation, recreation, renewable energy projects etc.
  - Encourage public-private partnerships to design creative solutions for AML sites.

**Minnesota –**

- Most common hardrock AML mineral impacts: iron ore mining; legacy sites are those mined before state laws were passed in 1980.
- Minnesota does not have a dedicated hardrock AML program nor inventory of hardrock AML sites but are aware of many sites.
- Recommendations:
  - Funding and guidance related to inventorying should be included as part of this program.

**Mississippi –**

- Mississippi does non-coal AML projects through its SMCRA Title IV grants.
- Most common hardrock AML mineral impacts: gravel, lime, and bentonite.
- Most common types of hardrock AML work: eliminating highwalls, grading and revegetating sites void of topsoil, and addressing erosional features.
- Mississippi's AML inventory is incomplete but constantly being updated.
- Recommendations:
    - Provide funding and support to the states.
    - Avoid federal overreach.

**Missouri –**

- Missouri does a limited amount of emergency non-coal projects through its SMCRA Title IV AML program.
- Most common hardrock AML mineral impacts: lead and zinc mines, and also some associated with mining of barium.
- Most common types of hardrock AML problems: 95%+ are imminent threats to safety from mine openings.
- Missouri Geologic Survey has a database of mine sites, but it does not contain cost information or other site characteristics like hazard types.
- Recommendations:
    - Look to the SMCRA AML program administered by OSMRE, which has a process with very limited administrative burden for the states, as a groundwork for establishing the hardrock AML program.
    - Provide some level of funding as a minimum to each eligible state to allow programs to ramp up.
    - Avoid distributing funding through competitive grants in order to minimize administrative burden and costs for proposal developments that end up being unfunded.

**Montana –**

- Most common hardrock AML mineral impacts: gold, silver, lead, zinc, copper, and molybdenum.
- Most common types of hardrock AML problems: open portals and shafts, waste rock dumps, and acid mine drainage.
- Montana has an inventory of known mine locations, but it is not especially detailed.

- Historically Montana has used SMCRA funds for non-coal AML work, but more recently has only been using funding from the legislature.
- Recommendations:
    - The process under SMCRA works well and could be emulated for this program.
    - Don't overly restrict the use of funding, these projects require flexibility.
    - Allow for funding to be used on necessary program components like inventorying, administration, travel, and technology.

### Navajo Nation –

- Navajo Nation has done hardrock AML reclamation work through SMCRA Title IV grants.
- Most common hardrock AML mineral impacts: uranium, copper, limestone, and sand and gravel.
- Most common types of hardrock AML problems: underground portals and shafts; surface open pits and highwalls; reclamation addressing both physical and environmental problems with geomorphic concepts and revegetation.
- Navajo Nation has an inventory of hardrock AML sites under Title IV, but it is limited and includes little to no current cost estimates.
- Recommendations:
    - Learn lessons from the good aspects of SMCRA program – 3–5-year grants, inventory (key features), prioritization scheme, and grant administration.
    - Keep in mind that Tribes are unique; the Federal Government has Trust Responsibility to them.
    - Lands are held in Trust for the Tribes, making them Tribal Lands.
    - Consideration should be given to Tribal cultural aspects when selecting projects for reclamation.
    - Program funding should be open to all non-coal AML.
    - Tribes will need start-up funding for administration and inventories.
    - Navajo Nation does not have any federal partners, i.e. BLM or Forestry, thus does all the work with in-house resources and expertise.

**Nevada –**

- Most common hardrock AML mineral impacts: silver, gold, mercury, lead, zinc, tungsten, uranium, and gypsum mining.
- NDOM focuses its efforts on physical safety, mostly safeguarding, sealing openings, and eliminating highwalls.
- NDEP addresses water pollution, especially if an imminent threat to health and the environment, but in the absence of a responsible party funding is very limited.
- NDOM's detailed inventory of AML sites that impact physical safety is 50-60% complete
- NDEP maintains a comprehensive list of known AML sites ranked by environmental risk.
- Recommendations:
    - A Good Samaritan law is needed to protect cooperating state, federal, and local agencies as well as NGO volunteers, and industry project participants from long-term liability associated with AML projects.
    - Remining should be allowed as a remediation method; it will broaden resources for AML projects.
    - A categorical exclusion would help to streamline projects; significant time and resources are required for projects that are permitted by federal agencies.
    - A lack of manpower at local federal agency field offices will result in project delays.
    - Funding under this program should be a combination of formula (~70%) and competitive grants (~30%); the formula should factor in a variety of considerations such as past production and current inventories and should provide some minimum amount of funding to each eligible state. Remaining funding should be for competitive grants, which will allow more robust hardrock AML programs to make short-term progress with their shovel ready projects.
    - Certainty of funding is needed for states to hire new staff.
    - Funding should come with flexibility to address all facets of AML program work including inventory work, pilot projects, field investigation and alternative analysis/engineering, NEPA compliance, actual mitigation costs, and ongoing care and maintenance.

### New Hampshire –

- New Hampshire does not currently address AML issues or have budget to do so.
- There are no known locatable/hardrock AML hazards.

### New Jersey –

- Most common hardrock AML mineral impacts: iron and copper mines.
- Most common types of hardrock AML problems: mine openings and highwalls.
- There is a comprehensive inventory of AML sites, but it does not include costs.
- AML work is funded through responsible/liable landowners.
- Recommendations:
    - Receiving funding for hardrock AML work under this program would allow New Jersey to expand its work beyond what can be covered by responsible/liable landowners and would be a great benefit to its citizens.

### New Mexico –

- Much of New Mexico's hardrock AML work is funded through SMCRA Title IV grants, but that funding is only be used for safeguarding hardrock mine openings.
- New Mexico occasionally receives funding from BLM for hardrock mine safeguarding and uranium projects.
- Most common types of hardrock AML work: safeguarding hazards and revegetating mine sites.
- New Mexico has a limited hardrock AML inventory with the exception of uranium mines, for which the inventory is very comprehensive.
- AML work in New Mexico faces complicated issues related to mixed landownership.
- Recommendations:
    - Consider how states and Tribes will implement NEPA, specifically section 106; New Mexico's current agreement is with OSMRE.
    - All states and Tribes should be funded to fully inventory their abandoned mines, perhaps over the first two years of the program. The results of those inventories should be the basis for how money is distributed in future years.

- Flexibility should be given to states and Tribes to make their own prioritization decisions.
- Each state and Tribe should receive some amount of funding, and part of the funding could be distributed by DOI based on merits of the applications received.
- The entities with the most comprehensive inventories and cost estimates for reclamation will most likely receive limited funding without providing state/tribes the ability to receive funds until inventories are completed. DOI will be challenged to equitably distribute the funds. States should be given authority to establish remediation standards.
- Funding should include administrative costs to states/tribes.

**New York –**

- Most common hardrock AML mineral impacts: limestone, granite, zinc, wollastonite, sandstone, lead, arsenic, iron, and zinc operations.
- Most common types of hardrock AML work: revegetation, grading, soil reserves, safety issues like highwalls, access drainage, and shaft closure.
- There is no inventory of hardrock AML sites in New York, but some preliminary work has been done.
- There is no dedicated source of funding; most AML work is conducted using funds from seized financial security tied to specific sites.
- Recommendations:
  - Ensure flexibility in what kinds of project/activities can be funded.
    - For example, New York will need to assess and compile a thorough scope of work that needs to be done, including mapping and data collection, obtaining permission of property owner to access site, prior to designing and reclaiming/remediating the sites while other states have already produced an inventory of sites and issues.
  - Establish this funding as an ongoing, long-term effort rather than a one-off infusion.
  - Establish a strong firewall so that money isn't diverted to coal AML issues.
  - Allow the use of funds to supplement reclamation at abandoned mines with seized financial security that is insufficient to perform satisfactory reclamation.

### North Carolina –

- Most common hardrock AML mineral impacts: gold, olivine, chromium, copper, iron, lead, zinc, silver, molybdenum, and tungsten mines.
- There is an inventory of abandoned mine sites, but it needs to be updated and does not include cost estimates.
- There is no state level funding for reclaiming pre-law abandoned mines.
- There have been several AML emergencies in North Carolina that result in homes being condemned.
- Recommendations:
    - Funding should be available to all state, Tribal, and local governments as well as landowners with need.
    - Keep in mind that many of these sites would not be capable of fulfilling a cost-share requirement.

### North Dakota –

- Most common hardrock AML mineral impacts: clay, rock, and sand and gravel.
- No unreclaimed traditional "hardrock" AML sites are known to exist in North Dakota, but there are abandoned sand, gravel, and clay mines.
- North Dakota has no inventory of any mine-type except abandoned coal mines.
- Recommendations:
    - Include all types of surface mining as eligible, e.g. sand and gravel.
    - State eligibility for funding should require existing reclamation laws or rules to determine which mines are considered abandoned and do not have responsible parties.

### Ohio –

- A limited amount of non-coal AML work can be conducted using state level funding, and some is done using SMCRA Title IV funding in isolated situations.
- Most common hardrock AML mineral impacts: salt, sand and gravel, limestone, and clay.
- Most common types of AML problems: highwalls and subsidence events; these are primarily emergency situations.
- There is no inventory of non-coal AML sites.

- Recommendations:
    - This program could be structured similarly to the SMCRA Title IV coal AML program, which has a long history of successful implementation; this includes discretion to states and Tribes to implement their programs with federal oversight.

**Oklahoma –**

- Most common hardrock AML mineral impacts: construction ores and underground lead and zinc mines.
- Most common types of hardrock AML problems: highwalls, open mine shafts, hazardous water-filled pits, subsidence, and mine waste.
- Oklahoma conducted a high-level non-coal inventory of inactive/abandoned mines in 1991, but it was focused in one region and is in need of updating and additional detail.
- Recommendations:
    - Use the SMCRA Title IV coal AML program as a model.

**Oregon –**

- Most common hardrock AML mineral impacts: gold, silver, copper, lead, zinc, and nickel, and mercury mining.
- Most common type of hardrock AML problems: Acid mine drainage and tailings.
- A list of priority sites was generated in cooperation with USFS and BLM, which is mostly up to date.
- Recommendations:
    - Allow funds to be used on private land without cost recovery from the private landowner; they are AML sites because the former operator either doesn't exist or doesn't have funds, so there is generally no chance of cost recovery.
    - Do not exclude smaller sites that have combined watershed impacts.
    - Have some allowance for watershed wide assessment of multiple AML sites.

**Pennsylvania –**

- Most common hardrock AML mineral impacts: aggregates
- Most common types of hardrock AML problems: emergencies associated with highwalls and pits (there have been recent instances of iron mines collapsing), spoil piles and impoundments, and water pollution.
- There is no inventory of unpermitted, "pre-act" hardrock sites.
- Recommendations:
    - Provide some project-specific funding opportunities.
    - Use the established AML programs as a model, but keep in mind additional staff will likely be needed even in the established programs.
    - Provide as much flexibility as possible for projects.
    - Avoid inordinate levels of reporting requirements where resources would be better spent on actual reclamation.

**South Carolina –**

- South Carolina has no inventory of AML sites but is aware that some exist.

**South Dakota –**

- Most common hardrock AML mineral impacts: gold and uranium mines.
- Most common type of hardrock AML problems: open shafts, unstable highwalls, and collapsed structures.
- South Dakota has an inventory primarily focused on the Black Hills, where most historic mining activity occurred. There are also uranium mines in the northwest corner of the state that are not listed on the inventory.
- Recommendations:
    - A grant to update South Dakota's AML database, create a prioritization system of AML sits, and generate cost estimates for the highest priority sites would be a tremendous benefit to the state; there is not currently funding or personnel to develop a priority list or estimate costs.
    - Divide funding equally among all states and Tribes with AML locations; this will give every state a chance to reclaim high priority AML lands.

**Tennessee –**

- Most common hardrock AML mineral impacts: limestone quarries, but these generally can't be reclaimed.
- There is no inventory of hardrock AML sites in Tennessee
- Recommendations:
    - Tennessee would welcome the opportunity to reclaim a non-coal AML site deemed a high priority with the funding provided under this program, perhaps through a cooperative agreement, but would not want to be obligated to develop a hardrock AML program.
    - It is unclear where limestone will fall under the definition of hardrock AML.

**Texas –**

- Most common hardrock AML mineral impacts: uranium, cinnabar, and silver mines; there are also a large amount of construction material sites for minerals such as limestone and sand and gravel.
- Most common type of hardrock AML work/problems: mine openings, water pollution, highwalls, land regrading, and revegetation.
- Texas has a limited existing inventory of hardrock AML, but it does not include construction materials that might be eligible as non-coal.
- Texas has used SMCRA Title IV funding for non-coal work in the past, but now only uses that funding for coal AML work.
- The only non-coal AML sites with budget in Texas are uranium.
- Recommendations:
    - Funding should be provided for the extensive inventory work that will be required for non-coal AML.

**Utah –**

- The Utah AML program primarily does coal AML work but does a limited amount of hardrock AML work with SMCRA Title IV grant funds.
- The program also has a cooperative agreement with BLM for some AML work on BLM lands.
- Utah has a partial inventory of hardrock abandoned mine hazards.
- Recommendations:
    - Establish parameters for inventories to create consistency among states and Tribes.

- Recognize the difficulty in determining if mine waste is in need of reclamation and the need to use some kind of method for determining risk factors and clean-up standards.

**Virginia –**

- Most common types of AML problem: shafts and openings, impoundments, denuded land, highwalls and water filled quarries.
- Virginia has a very comprehensive inventory of non-coal mines, but cost estimates are not completed until reclamation is being planned at a given site.
- Non-coal AML sites in Virginia have resulted from a large variety of minerals being developed, both through open pit and underground mining.
- There is generally very limited funding for non-coal AML work in Virginia.
- Recommendations:
  - A competitive process in combination with a formula would be the most efficient and fair way to distribute funding.
  - A method to first inventory and rank sites is necessary.
  - Funding should be allocated for different tasks (inventory, ranking, mitigating).
  - There should be a process for states and Tribes to share experiences so that each does not have to recreate the process on their own.
  - The NGGDPP effort with USGS could be used as a model for that kind of process, in particular their National Digital Catalogue: https://www.usgs.gov/core-science-systems/national-geological-and-geophysical-data-preservation-program.

**Washington –**

- Jurisdiction for Washington Geologic Survey is limited to the surface expression of minerals.
- Most common hardrock AML mineral impacts: gold, silver, lead, zinc, tungsten, and manganese.
- Washington's hardrock AML inventory is incomplete, out of date, and does not include cost estimates.
- There is no consistent budget for hardrock AML work in Washington.
- Recommendations:
  - Include inventory work as eligible use of funds.

- Allow states to reclaim to state standards with minimal federal oversight.
- Avoid making the definition of hardrock AML too narrow; locatable under the 1872 general mining law may miss important issues.

**West Virginia –**

- West Virginia's AML work is limited to coal, but the program is aware of abandoned non-coal sites.
- Most common hardrock/non-coal AML mineral impacts: quarries, clay mines, and some saltpeter mines.
- Recommendations:
  - Include all other types of mining not covered by traditional coal AML; the physical hazards are the same regardless of the mineral extracted, and environmental concerns are equally bad if not worse.

**Wyoming –**

- Wyoming conducts non-coal AML work by allocating a small portion of its annual SMCRA Title IV coal AML grant to high priority non-coal AML hazards.
- Most common hardrock/non-coal AML mineral impacts: uranium and a variety of metallic mineral mines, with uranium AML sites receiving the most attention.
- Wyoming has a fairly comprehensive inventory, but it was developed in 2004 so it is somewhat out of date.
- Recommendations:
  - Carefully consider what information will be required for reporting of program metrics and consult closely with states and Tribes on those issues, especially if an inventorying system/tool is to be developed.
  - Consider ways to streamline the NEPA process, such as through categorical exclusions. Otherwise, the long NEPA process may cause significant delays and diminish the accomplishments of the program, especially in the short term.

## IMCC Contact Information

The IMCC is a multi-state governmental organization supporting the natural resource and related environmental protection and mine safety and health interests of its member states.

For more information, please contact us using the information below or visit IMCC's website at: http://imcc.isa.us/

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