



Bureau of Land Management

The Cooperative Conservation Based
Strategic Plan
for the
Abandoned Mine Lands Program

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Developed by:

Bureau of Land Management
Division of Engineering and Environmental Services
And
State Office AML Program Leads

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The Cooperative Conservation Based Strategic Plan for the Abandoned Mine Lands Program

1. Introduction

The Abandoned Mine Lands (AML) Program Strategic Plan establishes the context whereby the Bureau of Land Management (BLM) mitigates and remediates hardrock AML sites on or affecting public lands. The plan supports the Department of the Interior's (DOI) strategic plan, and is implemented through BLM's Annual Work Plan (AWP) and State and Field Office operational plans.

The AML program is a "white hat" restoration program, and exemplifies cooperative conservation. This plan applies AML program business processes in the context of the DOI's Cooperative Conservation approach.

- Cooperation in gauging risks and setting priorities;
- Communicating program objectives and values; and
- Consultation with government and non-government partners.

Building on the initial AML pilot efforts from the 1990's, the AML program has developed bureauwide in the western states, and has matured. It is timely and appropriate to look forward and plan for the future of the program. The results of our planning efforts are reflected herein.

This plan provides field managers and staff with a policy framework for setting local or state priorities and provides senior management and budget personnel with explanations of program values, processes, issues and factors that may impact the program's future over the plan's timeframe. The plan links national goals with State Office multi-year operational plans.

1.1. Applicability

The plan applies to AML water quality projects funded under the Soil, Water and Air subactivity (1010); physical safety hazard projects funded under the Hazard Management and Resource Restoration subactivity (1640), including the Special Cleanup Fund; and projects funded under the Department's Central Hazardous Materials Fund (subactivity 2640). The plan facilitates coordination when projects are proposed for funding under multiple subactivities.

1.2. Timeframe

The plan covers the remaining period of the DOI and BLM current five-year strategic and operational plan (FYs 2003 – 2008) and provides a foundation for development of the next plan (FYs 2009 – 2013).

1.3. Assumptions

The plan assumes that program funding will remain level except for increases to cover uncontrollable costs (e.g., salaries and benefits). Without additional funds, it is assumed that costs of monitoring and maintenance of remediated sites will begin to chip away at available funds for new projects. In addition, the AML program will continue to reflect a bureauwide scope throughout the western states.

Appendix A provides background information about hardrock AML site impacts and BLM's AML inventory.

2. Strategic Approach

2.1. Program Objectives

The purpose of BLM’s AML program is to assist DOI, BLM and partners in fulfilling broad missions of improving water quality and enhancing public safety. Our vision is to mitigate hazards to protect public health and safety, and restore watersheds for resources, recreation, fish, and wildlife by remediating all hardrock AML sites on or affecting the public lands. Key program objectives are to:

- Identify sites.
- Prioritize sites based on risks.
- Remediate sites with available resources over specified time periods.
- Report program accomplishments.
- Conduct education and outreach activities to warn people about the potential dangers of AML sites.

In so doing, BLM aims to:

- Maintain a working inventory of known AML sites, with accurate and complete information needed by the public and decision-makers.
- Select from the inventory sites to be remediated based on priority criteria.
- Ensure that each State Office with AML sites receives its fair share of available funds.
- Complete ongoing remediation and mitigation projects before engaging in new projects.
- Conduct further inventory and field validation work in accordance with land use planning efforts.
- Report, manage, and reduce contingent environmental cleanup liabilities.
- Leverage funds and achieve cost savings through partnerships, use of volunteers, and cost avoidance/cost recovery authorities.
- Provide needed policy, direction, and program management tools to State and Field Offices.

2.2. Program Goals

The following matrix shows how the AML program fits within the DOI and BLM strategic plans and budget priorities.

Area	Resource Protection	Serving Communities
DOI Strategic Goal	Protect the Nation’s natural, cultural and heritage resources	Safeguard lives, property and assets, advance scientific knowledge, and improve the quality of life for communities we serve
DOI End Outcome Goal	Improve Health of Watersheds, Landscapes, and Marine Resources that are DOI Managed or Influenced in a Manner Consistent with Obligations Regarding the Allocation and Use of Water	Protect Lives, Resources, and Property
DOI End Outcome Performance Measures	Land Health: Mines 1.1.08 Number of land acres reclaimed or mitigated from the	Improve Public Safety and Security and Protect Public Resources from Damage

	effects of degradation from past mining.	4.1.13 Mitigate Hazards: Percent of physical and chemical hazards mitigated within 120 days to ensure visitor or public safety.
BLM Budget Emphasis Areas	Successful management of rangelands and forests to achieve healthy and productive watersheds by improving water quality. Improve dispersed recreational opportunities by enhancing visitor safety.	Improve water quality. Enhance visitor safety.
Financial Statements	Reduce contingent environmental cleanup liabilities	

2.3. Performance Measures

The following table shows FY 2005 actual accomplishment figures, FY 2006 and FY 2007 planned targets. While outyear forecasting is challenging, AML program leads are reviewing planned projects and associated workload in order to develop supportable targets for the outyears through FY 2013.

AML Program Elements	Measure	FY 05 Actual	FY 06 Target	FY 07 Target
BH – Inventory AML Sites	# of sites	829	1,062	1,072
HP - Remediate AML Physical Safety Hazards	# of sites	175	242	267
JK - Implement AML Projects to Restore Water Quality	# acres	934	300	489
NP - Evaluate PRPs for Cost Avoidance/ Recovery	# actions completed	32	58	43
NQ – Process Hazmat Cost Avoidance/ Recovery Cases	# cases referred	10	19	23
Note: NP & NQ include both AML & Hazmat				

2.4. Risk-Based Approach

Most estimates about hardrock AML sites maintain that only a relatively small portion of sites cause significant environmental degradation (primarily through water pollution) or pose physical safety hazards. Of the 11,000 sites in BLM’s inventory, most are five to ten acres in size and conventional in complexity and impact.

Experience from initial pilot AML watershed projects in Colorado and Montana has shown that it may not be necessary to remediate every site. For example, the U.S. Geological Survey was able to identify through tracer studies that only a fraction of the 1,000+ AML sites in Colorado’s Upper Animas River watershed were contributing significantly to water pollution.

Similarly, from a risk standpoint, there is a higher level of visitor safety expectations at places where the BLM has invited the public to visit, such as a designated recreation area, as opposed to a remote location on public lands. Accordingly, higher priority needs to be placed on cleaning up AML sites in close proximity to designated recreation areas.

2.5. Priority Ranking Criteria

BLM has established national level priority ranking criteria used to nominate sites for funding (see Appendix B). These criteria are applied by State Offices and their partnering agencies and organizations and reflected in multi-year AML plans and in BLM's Annual Work Plan. Specific projects are evaluated through project peer review processes.

2.6. Implementation

The AML program is administered bureauwide as follows:

- Washington Office. The AML program is part of the Minerals, Realty and Resource Protection directorate (WO-300) and the Division of Engineering and Environmental Services (formerly the Protection and Response Group) (WO-360). The Lands and Resources Projects Division (WO-330-D) hosts the Abandoned Mine Module (AMM), the AML inventory and program management database. The Renewable Resources and Planning directorate (WO-200) coordinates funding, water quality, fisheries, land use planning, recreation, and cultural heritage program activities with AML.
- State and Field Offices. AML Program Leads in the State and Field Offices are split between full-time and collateral duty (often with Hazard Management or Mining Law Administration responsibilities).
- National Science and Technology Center (NSTC). NSTC provides technical expertise and support, national environmental service contractors, and assistance with searches for potentially responsible parties under CERCLA.
- National Training Center (NTC). NTC holds an AML site characterization course and integrates AML issues in a host of Hazmat and related courses.

The AML program has a business process that can be managed by tools such as the AMM database, the BLM Management Information System and its several modules (e.g., Budget Planning System, Performance Module, and Cost Management Reports). These tools are available to all AML program personnel throughout the bureau.

Development of an AML program manual and handbook to consolidate and update the myriad of Instruction Memoranda and other program materials is currently underway.

AML program coordinators have collaborated on specific needs and actions that are necessary and desirable to make progress towards achieving program objectives. An analysis of these actions shows that they are best conveyed within the context of the DOI's approach to cooperative conservation. These actions are explained in the next section.

3. Actions

3.1. Cooperative Conservation

Cooperation signifies emphasis on voluntary action, partnerships, collaborative work, and commitment to work in concert with all partners to attain common conservation goals.

3.1.1. Reduce Burden on Taxpayers

3.1.1.1. Potentially Responsible Parties

BLM will continue to pursue potentially responsible parties (PRPs) under CERCLA. BLM will use the Abandoned Mine Module (AMM) database to ensure that PRP searches are conducted on all water quality projects (e.g., 1010 subactivity funded projects). BLM will also conduct a CERCLA cost recovery case review for eligible AML projects to ensure that SOs are following the applicable processes. NSTC will conduct the study, building off of an initial review of the Alaska State Cost Recovery Matrix Project. Idaho and Utah State Offices will be reviewed in FY 2006.

3.1.1.2. CERCLA “Comfort Letters”

BLM, in consultation with the Office of the Solicitor, will consider use of CERCLA “comfort letters” on a case-by-case basis with non-liable third parties who want to approach BLM with a plan to restore abandoned mine sites. This approach is being used by the Nevada SO at the MacArthur Pit site.

3.1.1.3. Mining Claimants

The AML and Solid Minerals programs will develop policy on mining claimant responsibilities related to AML sites. This policy will help determine if the site falls within the parameters of the AML program or should be addressed through BLM’s surface management program.

3.1.2. Increase Collaborative Work

3.1.2.1.1. Service First Partnership

BLM will work with the Forest Service to apply the Service First approach in the context of AML program coordination. Examples where this approach may make sense range from joint field operations activities on specific AML sites, technical training, and development of shared policies and strategies.

3.1.2.1.2. Reducing Risks and Liabilities

DOI bureaus must prepare annual audited financial statements in accordance with the Chief Financial Officers (CFO) Act of 1990 and the Government Management Reform Act of 1994. This requirement includes financial reporting of contingent environmental liabilities (ECLs). ECLs are future costs associated with the remediation (including containment, treatment, or removal) of contamination that could pose a threat to public health or the environment. BLM will ensure that AML sites posing environmental risks are reported accurately. These sites are already given priority through the water quality criteria and project selections.

3.1.3. Pursue Partnerships with External Organizations and Individuals

BLM State and Field Offices have developed extensive partnerships at all government levels: Federal, State, regional, local, and even international. Within the DOI, BLM coordinates its program with the Office of Surface Mining, U.S. Geological Survey, Bureau of Reclamation, and National Park Service. Other Federal partners include the Forest Service, EPA, and U.S. Army Corps of Engineers. BLM also has partnerships with non-government organizations (NGOs) ranging from mining companies to public interest and volunteer groups. Examples of what partnerships have achieved include:

- California. BLM, EPA, and the USFS are finishing the last phase of a multi-year multi-agency mercury cleanup effort in the Rinconada Mine located in the headwaters of the Salinas River. Reclamation of over 50 acres of stream and historic mercury mill sites and removal of 1,700 tons of mercury mill tailings will reduce the mobilization of mercury and improve downstream conditions.
- Nevada. BLM recently put together one of the most ambitious AML efforts ever undertaken by organizing a broad partnership that included the Nevada mining industry, state officials, independent scientists, and other volunteers. The group backfilled 55 mines in just a few short days. The cost to taxpayers was minimal. The value to the public, now and for the future, is beyond measure.
- New Mexico. The Orogrande Mining District is within easy driving distance of El Paso and Alamogordo and is used extensively by the public for rock hounding, recreational mining, hiking, and exploring. It is the highest density physical hazard area in the State that includes BLM-administered land, involving over 350 mine sites and 1000 mine features in a two square-mile area. BLM and the New Mexico Abandoned Mine Land Bureau closed 56 physical hazard features, including a 200-foot deep shaft on patented land where a high school student fell to his death in March 2000.
- Oregon. BLM and the Oregon Department of Environmental Quality have collaborated successfully in several watersheds to remove contaminated mine sediments and reduce acid mine drainage. As a result, improvements have been made benefiting fisheries habitat for salmon, steelhead and redband trout.

BLM will continue to maintain existing working relationships with these organizations, and will pursue additional partnering opportunities. A list of non-Federal agency and organization partnerships can be found in Appendix C.

In addition, the BLM will continue to work with private landowners, particularly in split-estate (surface/sub-surface) situations. The Arizona State Office has taken the lead in applying mining claim use and occupancy management to prevent more abandoned mines from developing.

3.1.4. Leverage Funds

Nationally, BLM and its partners have limited funds for restoring abandoned mine lands. This makes it imperative to leverage funds effectively wherever possible. Moreover, the watershed approach envisions that partnering agencies and landowners will do just that. While most partnerships necessarily involve project coordination and pooling of funds, some have resulted in more significant leveraging.

Several western States receive AML grants from the Office of Surface Mining. While abandoned coal mine sites are the primary emphasis, some States have completed (or are well on their way to completing) their coal AML sites and have the flexibility to apply funding to non-coal sites. Examples of fund leveraging achieved through SMCRA-funded partnerships include:

- Montana. A cooperative effort by the State of Montana, BLM, twenty private landowners, and several contractors resulted in the restoration of four miles of stream channel on High Ore Creek and the reclamation of four mines in the watershed. Mill tailings and waste rock, from about 400,000 tons of ore milled at the Comet Mine, filled a large area of the High Ore Creek Valley and were retained behind a dam which had failed and allowed mine wastes to erode and be transported downstream to the Boulder River.
- Utah. BLM along with the State of Utah, the Forest Service and Tribal governments completed a five-year, multi-agency watershed partnership cleanup effort in Cottonwood Wash, located in a rural area of southeastern Utah. This watershed had been heavily impacted by uranium and vanadium mining which led to its listing as an impaired watershed. By reclaiming 199 openings, plugging 282 open drill holes, reclaiming 265 mine waste dumps and 15.2 miles of mine access roads BLM and its partners were able to reduce the effects of uranium in this drainage.
- Wyoming. AML is a major program to the State of Wyoming. The State receives \$30 million in SMCRA-based AML grants from OSM. Of that amount, Wyoming invests \$17-18 million each year on reclamation of AML sites on BLM land. Much of that investment is for uranium mine reclamation in the Gas Hills area.

In addition, some mining companies have been willing to enter into voluntary agreements to help fund AML remediation projects:

- In Colorado's Upper Animas River near Silverton, downstream fish populations are on an increasing trend, and there is evidence of self-sustaining fish populations in lower reaches. Partners have completed approximately 50 cleanup projects for a total of \$28.6 million at a cost one tenth of the typical Superfund mining cleanup. In the Animas, BLM has leveraged its cleanup funds of \$2.7 million by a ratio of 1 to 10.

Sometimes, damage assessments contribute funds to major restoration projects:

- In Idaho, BLM is working in cooperation with the EPA, State, Tribes, County, and other Federal agencies to proactively address AML issues in the Coeur d'Alene Basin. This is one of the largest environmental cost-recovery efforts in history. BLM, along with other Interior, Agriculture and Tribal staffs has continued to provide support for the massive Natural Resources Damage Assessment lawsuit. The interagency team has started removal and/or stabilization of major areas of mine tailings and waste rock and restored channels and riparian zones within several important sub-watersheds. BLM has a major role in EPA's remedial plan for the Basin. The plan provides for a \$359 million remedy over a 30-year time frame.

BLM will continue to pursue its options to leverage funds in the future.

3.2. Cooperative Communication

Communication highlights commitment to transparency and accountability and the innovation that occurs through the exchange of ideas and ongoing dialogue with partners.

3.2.1. Enhance Openness

BLM will make program information more readily available. For example, BLM will post and distribute this strategy along with the State Office multi-year operational plans. AML inventory data has already been shared with EPA and the Forest Service, and BLM will continue to exchange record updates from its AMM database. In addition, BLM is currently developing an AML program manual and handbook. Drafts of these products will be shared with partners, and an opportunity will be provided to garner their suggestions and input.

3.2.2. Broaden Outreach

The AML webpage will be revised in conjunction with the Department and Bureau web redesign project. WO-360 has obtained contractor services for the initial redesign steps. BLM will continue to support the “Stay Out! Stay Alive!” (SOSA) program led by the U. S. Department of Labor’s Mine Safety and Health Administration (MSHA). Support actions include updating, publishing and distributing the BLM AML safety brochure, and the SOSA video developed by the Utah SO. BLM will also seek to get on the agendas of external groups and, where possible, to educate external constituencies at their forums.

Recently, Trout Unlimited released “A Grass-roots Guide to Abandoned Mine Cleanup.” The Guide includes important information on how to identify old mining sites that could be contributing significant amounts of pollution to the surrounding air, land and water, as well as how to initiate promising cleanup projects and eventually fund them. The BLM, EPA and Forest Service reviewed and contributed to the report and joined in the press release announcing its availability. Two BLM State Offices are partnering with Trout Unlimited, and BLM will work to expand the partnership to other States.

3.2.3. Report Progress and Success

FY 2007 marks the tenth year of Clean Water AML appropriations. BLM will develop a Ten Year AML Funding Anniversary Report to document program progress and success. In so doing, BLM will explore preparing this report with its partners. Preliminary discussions with Forest Service and EPA AML leads have been positive. Funding and contractor assistance will be needed.

3.2.4. Improve Accountability

3.2.4.1. AMM Database and System

BLM will continue to enhance the AMM database. Initiatives are already underway to combine AMM with the Site Cleanup Module (SCM). AMM and SCM have their own features and capabilities. The consolidated system will enable features and capabilities to be shared. The result will be an integrated system that eliminates duplicative records, facilitates program and project management, and enables reporting of Contingent Environmental Liabilities to the Department. Once consolidated, development of more useful reports for Program Assessment Rating Tool (PART) analysis and links to MIS and FFS/FBMS and other BLM databases will be pursued.

3.2.4.2. AML Project Peer Review Process

BLM will refine its AML project peer review process. Now that this process has been implemented for two fiscal years, lessons learned can be taken back to make the peer review process more useful. One area that needs to be factored into the process is State Office and Field Office performance. For FY 2008, the State Office multi-year plans will be able to provide a backdrop to gauge the status of long-term funding commitments and identify patterns and trends affecting future priorities and fund shifts among State Offices.

3.2.5. Foster Innovation through Exchange of Ideas

3.2.5.1. Technology Transfer

Greater efforts will be made to encourage and facilitate technology transfer. For example, BLM will continue to support the Acid Drainage Technology Initiative through participation by the Butte Field Office. BLM will seek to have local AML program staff represented and participating at periodic technical forums and conferences, such as the upcoming Billings Land Reclamation Symposium, and EPA Hard Rock Mining Conference in 2006. BLM has also discussed with the American Association of State Geologists placing AML topics on the agenda of its conferences. Coordination will also continue with USGS on AML-related science initiatives.

3.2.5.2. Share Best Practices

BLM will encourage more AML personnel to share their lessons learned and best practices. This can be done, for example, by providing specific AML content for NTC training courses in associated disciplines, developing technical information bulletins in conjunction with NSTC, and sharing information through BLM's Best Practices web site.

BLM also will continue its long-standing partnership with Bat Conservation International. This partnership has yielded useful guidance in handling the impact of mine closures on bat habitat and BLM will work to expand this effort throughout the State Offices.

3.2.5.3. Ongoing Dialogue With Partners

BLM will continue collaboration with Federal and State partners on AML program policies, issues, and strategies. Examples include:

3.2.5.3.1. Federal Mining Dialogue (FMD)

BLM is part of the FMD. The FMD is a forum for discussing and coordinating AML-related issues among Federal agencies. EPA serves as the lead agency. Core participating agencies and offices are the Forest Service, the U.S. Department of Agriculture's Hazardous Materials Management Division. Other agencies participate when issues of interest arise. These include USGS, NPS, OSM, and the Office of Environmental Policy and Compliance, the Department of Justice, and the U.S. Army Corps of Engineers. The FMD has also provided input into the EPA's One Cleanup Program, which has taken on several non-legislative issues at a senior level.

3.2.5.3.2. National Association of Abandoned Mine Land Programs (NAAMLPL)

The NAAMLPL serves to foster positive and productive relationships between the states and tribes and the federal government. Though chiefly a coal-AML, SMCRA-based association, several western states with hardrock AML programs are members. BLM will support the Association by participating at its annual conferences. The NAAMLPL's next annual conference is being held in Billings, Montana in September 2006. The Montana State Office is coordinating with the State of Montana to assist with conference logistics.

3.2.5.3.3. Western Governors Association (WGA)

BLM will maintain its liaison with the WGA. WGA has conducted studies and issued reports on the magnitude of hardrock AML sites and has been involved in various legislative initiatives including proposed "Good Samaritan" amendments to the Clean Water Act.

3.2.5.3.4. Sustainable Development

BLM recognizes that abandoned mine restoration is an integral part of sustainable mineral development, a concept adopted by the United States and 192 other countries, to balance environmental, economic, and social considerations in planning for mining operations. The BLM participated in the first Pan-American Workshop on Abandoned Mines sponsored by the United Nations Environment Programme.

Currently, BLM is partnering with the Yukon River Inter-Tribal Watershed Council, Alaska, and Canadian agencies. The Yukon River is one of the longest rivers in North America, flowing 2,300 miles from its headwaters in Canada's Yukon Territory, through Alaska's interior to the Bearing Sea. Native people hunt and fish along the Yukon, the longest salmon run on earth. This partnership involves 34 Canadian First Nations and Alaskan Native Corporations. The Council has taken on an international role to facilitate AML site remediation and monitoring.

The BLM will continue to share information and assist other nations in developing their abandoned mine programs when opportunities arise.

3.3. Cooperative Consultation

Consultation signifies Interior's commitment to integrated decision-making, and our focus on using local information and knowledge to address place-based conservation challenges.

3.3.1. Integrate Decision-Making

BLM will work with programs supported by AML such as Hazard Management and Resource Restoration, Solid Minerals, Land Use Planning, Clean Water, Recreation, Cultural and Historic Preservation, and Fisheries. Such internal coordination is essential bureauwide. For example:

- Hazard Management and Resource Restoration: Fund leveraging; Avoidance of duplicative project funding; Consolidating AMM and SCM; CERCLA policy development and implementation; and Reporting Contingent Environmental Cleanup Liabilities
- Solid Minerals: Mining claimant site restoration policy; LR 2000 enhancements.
- Clean Water Program: Water quality standards and Total Maximum Daily Loads; Watershed priorities and assessment.
- Land Use Planning: Future AML inventory and field validation priorities; NEPA policy.
- Recreation: Priorities for AML physical safety hazard mitigation at designated recreation areas, National Land Conservation System (NLCS) areas, OHV and other trails, and special recreation use permit areas.
- Cultural and Historic Preservation: NHPA requirements and policy.
- Fisheries: Fish habitat protection and restoration.
- Wildlife: Habitat and migration corridor protection and restoration.
- Special Status Species: habitat protection and restoration.

3.3.2. Increase Use of Local Information and Knowledge

3.3.2.1. Development of Multi-Year Plans

State Offices are developing workplans for AML program activities to foster long-range planning. These multi-year plans will provide critical information needed for interagency program coordination, facilitating strategic plan support, and for budget projections. Initial plans are in place. Plan updates will occur as part of the AML project peer review process. State Offices are to invite their partners to participate in developing and revising their plans.

3.3.2.2. BLM State Office AML Workshops

State Offices with significant AML program activities among their field offices will conduct periodic workshops in coordination with WO360. The workshops will provide an opportunity to obtain field office perspective and input into strategic planning for the AML program, and to operational AML plans.

4. Summary

This AML program strategic plan provides field managers and staffs with a policy framework for setting local or state priorities, and delineates program values for senior management and budget personnel. The AML program is a “white hat” restoration program, and exemplifies implementation of the DOI's approach to cooperative conservation. Our program vision of eliminating all AML sites and risks to the public is far-reaching. Though unattainable in the near future, BLM can make significant progress.

AML sites are the product of over a century of historical mining, and it will take time and resources to address their impacts over a short timeframe. Fortunately, not all AML sites are impacting water quality or posing physical safety problems. BLM and its partners have identified methods and developed risk-based criteria to establish manageable priorities and resource requests. BLM will continue to work in priority watersheds to help foster improvements in water quality, and focus on populated and high-use areas first when remediating AML sites posing physical safety hazards. BLM will also conduct outreach and sponsor awareness activities about the potential dangers AML sites may pose.

Program success measures are in place. Management systems and business processes have been developed. Program policies are being consolidated into a manual and handbook. Our internet web page is being redesigned. Recognizing that more needs to be done, AML program personnel have come together to identify specific action steps that are needed to support their on-the-ground activities. This plan builds on successes and lessons learned to date, and provides a foundation for the AML program's future.

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Magnitude of Hardrock AML Sites

Historic Mining in the West

Historic mines produced precious metals, base metals, and other mineral commodities (e.g., gold, silver, copper, lead, zinc, mercury, etc.) The mines shut down, became inactive, or were abandoned according to the conditions affecting mineral economics of the time. Many of the mines were operated as far back as the Civil War period, and transcended major gold and silver rushes that occurred in throughout the West, including large-scale rushes in Alaska, California and Nevada. Extensive mining supported World War I and II strategic mineral needs. Many of the mines involve extensive underground workings. Mines also needed mills to crush the ore, and smelters to produce the metals. Gold mining in Alaska involved placer techniques. Hydraulic mining in California resulted in stream siltation and potential erosion problems. Since these sites are old, most were not bonded or whatever bond may exist is insufficient to cover the remediation costs. The BLM conducts baseline searches to identify mining claimants and other persons who can assist in the remediation directly or in-kind. Where warranted, the BLM conducts more extensive searches for Potentially Responsible Parties who can be held liable for the costs. Few financially viable parties exist to share the costs.

Inventory

The BLM does not have a complete inventory of AML sites. During the early 1990's, the BLM established an AML Task Force, which developed a comprehensive inventory strategy and issued data collection requirements. Field validations were funded through existing resources. The extent and quality of inventory data collected or validated varies among the States.

In 1996, the Task Force reported its progress to the Director and Assistant Secretary. The BLM estimated it had approximately 70,000 sites encompassing over 300,000 features on BLM-administered lands. No cost estimate was made. The Task Force made several recommendations: shift focus on beginning to address known sites; and conduct more targeted future inventory work in priority areas. The recommendations were approved. By 2000, the inventory data was consolidated into a bureauwide database. BLM's AML inventory database had 11,000 sites and 40,000 features as of October 2005.

AML Impacts

Safety Hazards

Many abandoned mines may pose physical safety hazards and may cause environmental degradation, primarily through water pollution. Common safety hazards at AML sites include: open shafts and adits; unstable rock and decayed support structures; highwalls/open pits; contaminants; and confined space risks.

Environmental Hazards

Typical kinds of environmental problems stemming from AML sites include: contaminated/acidic surface and ground water; and stockpiled waste rock and mill tailing piles. Many affected watersheds are in arid climates in the West, where water is scarce, and the need to improve water quality for human and aquatic resources use is critical. Some western watersheds may be significantly impacted

by widespread mercury contamination. In addition to abandoned mine sites, there are abandoned smelter sites where remaining tailings piles from past milling operations continue to impact the environment.

Addressing AML impacts is becoming increasingly important due to increased exposure to people and risks of accidents, injuries, and tort claims.

Increased Exposure

Growing and Changing West

According to the 2000 Census, the West is the fastest growing region of the Nation, and 9 of the 12 fastest-growing States are in the West, where most BLM-managed land is located. Today, more than 63 million people live in the West, and the growth is expected to continue. Over 22 million people live within 25 miles of the public lands. From an AML standpoint, more heretofore remote sites are now in closer proximity to population centers.

Recreational use of public lands

Increased population growth in the West is also reflected in higher demand for outdoor recreation on public lands. Recreation areas, national by-ways, and campground facilities on public lands can be located in proximity to AML sites. Use of Off-Highway Vehicles often transpires at AML sites amid risks of dangerous shafts, and exposure to contaminants in the soil, water and air. Recreational fishing can place anglers in proximity of AML sites, and is impacted by decreased fish population among polluted waters stemming from AML sites, and available fish may pose significant uptake of contaminants when consumed. Events such as Lewis and Clark Trail anniversary activities can expose people to AML hazards.

Budget Impacts

Compliance. Nearly all AML remediation activities must comply with relevant legal requirements including NEPA, CERCLA, CWA, NHPA, and ESA. Studies and documentation of proposed actions require resources.

Mixed-ownership. Many AML sites and impacts traverse property boundaries between private land owners and land management agencies. Moreover, water runoff can flow among adjacent in-holdings. Split estate complexities also necessitate coordination. Consequently, shared remediation can involve expenses associated with developing partnership agreements.

Water treatment. Water treatment can be prohibitively expensive, particularly if it involves active treatment methods.

Repositories. Addressing mine wastes and tailings may involve transport to environmentally safe repositories. Where possible, BLM and its partners construct and maintain joint repositories. Such shared remediation may necessitate longer-term responsibilities for monitoring and maintenance.

Threatened and Endangered Species. Threatened and endangered species may reside in or around AML affected lands and waters. This is especially true for bat species. Adits often provide bat habitat. Thus, remediation of AML sites may require special techniques, such as use of bat gates, at additional cost.

Cultural and Historical Preservation. Some old mining communities want to preserve old mine workings and equipment. The BLM must work with local communities when reclaiming AML sites to meet National Historic Preservation Act requirements and desired restoration outcomes.

Monitoring and Maintenance. Virtually all reclaimed sites require continued monitoring and maintenance. Even signs and markers need to be replaced due to weathering or vandalism.

Environmental Liabilities. AML sites posing environmental problems can fall within the reporting requirements for Contingent Environmental Liabilities under the Chief Financial Officers Act. Additional field validation activities may be needed to gather and report current and accurate information about known AML sites.

Appendix B

AML National Level Evaluation Criteria

1. Water Quality Criteria

Score: Up to 10 points for each criterion met.

State government priority. Under the watershed approach, the State government has identified the watershed or watershed segment as a high priority in the context of Unified Watershed Assessment Categories I and II, and the State Watershed Restoration Action Strategy.

Partnerships. The project reflects a collaborative effort (such as fund leveraging) with other land management agencies having an interest in a specific watershed or watershed segment.

Cost avoidance/cost recovery. A realistic potential exists for cost avoidance or cost recovery by having potentially responsible parties contribute to the remediation efforts.

Impairment of water quality standards. The AMLs are causing, contributing to, or could contribute to an impairment of one or more water quality standards (Federal, State, Tribal, or local).

Water quality violations. The AMLs are causing, contributing to, or could contribute to a violation of Federal or State water quality law or regulation.

Threat to public health or safety. The AMLs are causing, contributing to, or could contribute to a threat to public health or safety.

Threat to the environment. The AMLs are causing, contributing to, or could contribute to a threat to the environment. In some cases, the actual violation may be significantly downstream in a watershed, in which case only a hydrologic connection to the AML need be demonstrated in order to justify funding.

Continuing/expediting an existing on-the-ground project. The additional funding will contribute to or expedite completion of ongoing AML watershed remediation (as opposed to an inventory work in a new watershed).

Location. The AMLs to be addressed are documented in BLM's Abandoned Mine Land Inventory System and are located on BLM-managed lands (not privately owned lands or mixed-ownership sites).

Cost efficient. The mitigation or remediation actions to be funded can achieve results by applying low cost, low maintenance measures (as opposed to higher cost, active water treatment methods).

2. Physical Safety Hazard Criteria

Score: Up to 20 points for each criterion met.

Death or injury has occurred. A death or injury is known to have occurred at the AML site and the site has not already been addressed.

Visitation/high use. The AML site is situated on or in immediate proximity to developed recreation sites and areas with high visitor use. Areas with High Visitor Use can include dry lake beds, sand dunes, high use roads, frequently used special event areas, open Off-Highway Vehicle (OHV) areas. Other sites qualify if a formal risk assessment indicates a risk level of high or extremely high.

Accessibility. The AMLs are judged to be easily accessible. Examples could include those located on main visitation pathways and adjacent areas when there is reason to believe visitation is occurring or has occurred in the past.

Location. The AMLs to be addressed are documented in BLM's Abandoned Mine Land Inventory System and are located on BLM-managed lands (not privately owned lands or mixed-ownership sites).

Cost efficient. The mitigation or remediation actions to be funded can achieve results by applying low cost, low maintenance measures.

Appendix C

BLM AML Partnerships (Non-Federal)

BLM AML Partnerships (Non-Federal)	
State Office	Partnership Organizations
Alaska	State of Alaska - Department of Natural Resources University of Alaska - Fairbanks Yukon River Inter-Tribal Watershed Council Yukon Territory - Division of Indian and Northern Development
Arizona	State of Arizona - Departments of: Environmental Quality; Land; Water Resources; and Office of Mine Inspector Bat Conservation International
California	State of California - Department of Environmental Conservation California Water Resources Board Delta Tributary Mining Council Friends of Deer Creek Group Nevada County - Resource Conservation District Placer County - Resource Conservation District Putah Creek Watershed Group Sierra-Trinity Abandoned Mine Lands Agency Group
Colorado	Animas River Stakeholders Group ASARCO State of Colorado - Departments of: Natural Resources; Public Health and Environment Colorado Mining College Colorado School of Mines Duke Energy Friends of the Animas Hinsdale County Lake County Lake Fork Watershed Group Lake Fork Watershed Working Group National Geographic Society San Juan Citizens Alliance San Juan County San Juan County Historical Society San Juan Resource Conservation District Silver Wing Mining Sunnyside Gold Company Trout Unlimited University of Oregon University of Utah
Idaho	Butte County City of Coeur d'Alene Coeur d'Alene Basin Commission State of Idaho - Departments of Lands; Environmental Quality; Fish and Game; Geological Survey; Historic Preservation Office Idaho Mining Association

	Shoshone County University of Idaho
Montana & South Dakota	Apollo Gold Deadwood Historical Preservation Society Fort Belknap Indians Granite County Commissioner Homestake Mining State of Montana - Bureau of Mines and Geology; Departments of Environmental Quality; Fish, Wildlife & Parks Montana State University-Reclamation Research Unit State of South Dakota - Departments of Environment and Natural Resources South Dakota School of Mines and Technology Stillwater Mining Trout Unlimited University of Montana
New Mexico	City of Silver City State of New Mexico Department of Minerals, Energy and Natural Resources WERC-New Mexico State University
Oregon & Washington	State of Oregon - Departments of: Environmental Quality; Geology and Mineral Industries State of Washington - Departments of: Ecology; Natural Resources
Utah	State of Colorado Department of Natural Resources State of Utah Departments of Environmental Quality; Natural Resources
Wyoming	State of Wyoming Department of Environmental Quality

State Office Multi-Year AML Work Plans