

# Improving Mine Reclamation in California

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*This issue paper has been developed by The Sierra Fund to frame the Policy and Coordination track of the Reclaiming the Sierra 2015 conference. This and the three other issue papers associated with the three other event tracks are working documents intended to frame the conference track. As a result, they will be revised and updated leading up to the conference. The Sierra Fund will produce an outcomes paper on this topic based on the conference proceedings, which will be published after the conference.*

## **Overview**

In the early days of the gold and silver strikes, mining in California was totally unregulated. The first mining regulations pertained to making and holding mining claims. Later, President Grant signed the federal 1872 Surface Mining Act which established the state as the “lead agent” for permitting and regulating mining in the state. Regulation of mining practices based on their environmental impacts began with the “Sawyer Decision” in 1884 of which essentially ended large scale hydraulic mining in the state.

Based on the federal 1872 Mining law, for more than 100 years, mine operators in California were under no obligation to reclaim their mines – they just took the gold or other precious metals and walked away from the mines, leaving physical and chemical hazards behind. These mines continue to present hazards to the public and the ecosystem.

With the adoption of the California Surface Mining and Reclamation Act (SMARA) in 1975, mines in California were required for the first time to reclaim the land after operations ended. In an effort to stop the creation of any more un-remediated mines, current mining law requires reclamation of any new mines in preparation for a beneficial end use. Unfortunately, despite laws requiring otherwise, not all modern mines undergo reclamation, leaving new scars on the land and the potential for new physical and chemical hazards created by the mining activity.

This paper explores the issue of improving mine reclamation in California. The Sierra Fund is looking at both the issues around remediating “legacy” mines from the 19<sup>th</sup> and 20<sup>th</sup> centuries **and** improving the enforcement of mining law on current mines to ensure that no new environmental problems are created by poorly reclaimed mines, therefore the topic of incentivizing mine reclamation the topic is presented in two sections:

- I. Post-CA SMARA current mining operations and reclamation
- II. Pre-CA SMARA legacy mines remediation

**Pre- vs. Post-SMARA Makes a Difference:** Under California’s SMARA, mines have different regulations depending upon their operational status in 1976:

- Mines that shut their doors prior to 1976 were not required to conduct reclamation activities. These “legacy mines” can be on public or private land. There are an estimated 47,000 abandoned mines in the State, 67% of them on federal land.
- Mines that started operation prior to 1976, and before zoning regulations in that county or city

may have required various permits, and that have continued to operate, are considered to have “vested rights” that allow them to continue operation as a “non-conforming use” in a special policy environment. They are still required to have an updated reclamation plan and to be regularly inspected. A finding of vested rights only removes the requirement for a use permit and evaluation under the California Environmental Quality Act (CEQA) for existing operations. Any expansion of the operation requires a permit and a CEQA review for the area outside of the existing vested right. A reclamation plan, annual inspections and financial assurances are still required for all operations, vested or not.

- Mines that started operation after 1976 are required by their lead agency to undergo a full CEQA evaluation and development of a reclamation plan prior to receiving a permit for operation. These mines are required to post bonds to cover the cost of reclamation when the operation ends. They are supposed to be regularly inspected and to be reclaimed to a beneficial end use when operation ceases.

## I. Post CA-SMARA Mining Issues

The California Surface Mining and Reclamation Act (SMARA) was adopted in 1975 to regulate both the opening of new mines and the reclamation of any currently operating mines (that were not closed by 1988). It has been amended several times over the last 40 years. Prior to the adoption of the California SMARA and its later amendments, California did not have a regulatory scheme for mining and there were no requirements that mines be reclaimed.

SMARA delegates mine regulatory and permitting functions on all property to the local land use agency, usually cities or counties. These “lead agencies” perform the environmental evaluation of mines required by CEQA, as well as review and approve the reclamation plan and associated financial surety documents as part of the overall mining permit they issue. The lead agency is also responsible for mine inspections and enforcement activities.

California SMARA law applies on federal lands when more than one acre of disturbance or more than 1,000 cubic yards of overburden or product is removed. All mines on federal lands are regulated by the land manager, usually the US Bureau of Land Management (BLM), the US Forest Service (USFS) or National Park Service (NPS).

One upshot of this regulatory structure in the State is that mine permitting involves 57 counties and scores of cities regulating mines, plus dozens of mine land-owning state and federal agencies, each with their own regulations and procedures. These manage not only the permitting and oversight of the mine’s operation and reclamation, but also discharges to land and water and other environmental impacts.

There are a several agencies and statutes which shape modern mine permitting in California:

- **Lead Agencies (usually cities and counties):** SMARA established that local government is the lead agency for implementing and enforcing SMARA. The local agency approval process has been amended several times over the decades since passage of SMARA. Lead agencies are responsible for making decisions on all elements of the permitting process.

Mine operators seeking a permit to open a new mine under current law have to perform an environmental review of their operation and proposed reclamation plan, agree to a financial assurance/bonding tool that will pay for the reclamation plan, and receive a permit. County and City Planning Departments coordinate this permit process. The lead agency is also responsible

for enforcing all elements of the permit, including doing annual inspections, increasing the Financial Assurance if warranted, and working with the operator throughout the project including getting the project reclaimed. Lead agencies have decision authority over:

- Mine Permit/Conditional Use Permit: deciding whether mining is the highest and best, most appropriate use for the property, or if it is incompatible with the General Plan and/or surrounding existing land uses; deciding what sorts of mitigations the permit operator might need to implement to reduce impacts on traffic, noise, dust, environmental and cultural resources; and approving the mine operator's mining methods.
- Reclamation Plan: ensuring that the mining process will unfold as outlined in the permit (usually mining plans are staged into several phases), deciding what the land use will be used for post-mining and ensuring that the Reclamation Plan leaves behind a properly contoured and vegetated property for this post-mining use. Usually this end use is compatible with the General Plan and zoning for the parcel.
- Environmental Documents required by the California Environmental Quality Act (CEQA): deciding whether there are any significant and unmitigable impacts that will result from the project; doing appropriate review of those impacts and developing a range of alternatives to address or mitigate those impacts; approving a final environmental document (whether it be a full Environmental Impact Report (EIR) or a Negative Declaration that declares there are no unmitigable impacts). A project may be permitted even with significant environmental impacts anticipated if the project is deemed to provide "a significant public benefit."
- Financial Assurances: ensuring that there is enough money in the financial instrument – usually a bond but sometimes cash in a bank – to reclaim the site to the standards in the Reclamation Plan. The State recommends that this amount be at least \$5,000 per acre of surface disturbed.
- **CA Office of Mine Reclamation (OMR)**, part of the Department of Conservation (DOC), is the primary state agency with oversight over mine regulation as outlined by SMARA. It has a limited role in implementing SMARA as those powers have been reserved for local government. OMR may comment on the reclamation plan to ensure compliance with state law prior to approval of the plan by the lead agency.
- **CA State Mining & Geology Board (SMGB)** "represents the State's interest in the development, utilization and conservation of mineral resources; reclamation of mined lands; development of geologic and seismic hazard information; and to provide a forum for public redress. The SMGB is composed of nine members appointed by the Governor, and confirmed by the Senate, for four-year terms. The SMGB serves as a regulatory, policy, and appeals body representing the State's interests in geology, geologic and seismologic hazards, conservation of mineral resources and reclamation of lands following surface mining activities." (from their website)
- **Clean Water Act regulations**, enforced in California by the State Water Resources Control Board and the Regional Water Quality Control Boards, regulate discharges into the State's waters impaired by contaminants such as mercury, acid mine drainage or excessive sediment. The Water Boards have the ability to regulate both "point- and nonpoint-discharge" as well as storm water discharge through their permitting structure. Any active mines with a discharge to water must receive a permit from the water board.

- **CA Department of Fish & Wildlife** issues the permit for recreational suction dredge mining for gold, in-lieu of a streambed alteration permit. The State of California defines suction dredge mining as, “The use of a suction system to vacuum material from a river, stream or lake for the extraction of minerals.” This typically, although not always, involves the use of a motor. This permit is structured similarly to a fishing license, allowing suction dredge mining wherever it is not specifically prohibited by the landowner. There is a currently a moratorium on issuance of these permits.
- **Other regulations**, depending upon the mine operation, might include permits that pertain to air quality, habitat, or historic and cultural resources on the parcel.

### **Recommendations for Action: Post-SMARA Mining Issues**

The key interest of the State in regulating mining is to ensure that a mine is operated in compliance with its permit, which protects the State’s water and air from contamination, and to ensure that when the mine ceases operation it is remediated to be ready for a beneficial end use.

**A. Strengthen SMARA and improve enforcement of SMARA by lead agencies:** Recent research by California Senate Natural Resources Committee and by the Department of Conservation’s OMR has shown that SMARA is enforced inconsistently by the counties and cities that serve as lead agency. While some local jurisdictions do an excellent job of regulating their mines, some counties and cities have been found to have a spotty record of inspection, enforcement of permit conditions and reclamation of mines in their jurisdiction. Mines that are known to be out of compliance with SMARA law are allowed to operate and sell their products to the State despite the mine's failure to comply with state law. In some instances mines have finished operating and collected the financial assurance funds without actually doing the reclamation outlined in their reclamation plan. In addition, it has been documented that many current mine operators do not pay their annual fees, creating financial strain on the regulatory activities funded by these fees.

The State is inhibited in its ability to track lead agency enforcement activities by an antiquated administrative system and computer technologies. It is nearly impossible for the state to track which mines in the state have done such things as had their annual inspection or paid their annual fees.

#### **Next Steps:**

1. Work with lead agencies to improve inspections: Ensuring that lead agencies have the resources they need to conduct an adequate inspection of the mine is crucial. For example, the State should offer training courses for lead agency staff to improve SMARA-mandated inspections, and work closely with lead agencies to ensure that required inspections are being conducted.
2. Design and implement a new database system that allows lead agencies, the public and the mining industry to keep track of the status of each mine in the State.
3. Review the current financial assurances of every mine in the state and ensure that they are adequate for the adopted reclamation plan.
4. Identify mine operators that have failed to pay their fees and design a method for recovering these fees.
5. Enforce the provisions that require mine operations selling construction materials to the state to be in compliance with SMARA.

## **B. Clarify the regulatory requirements for suction dredge mining permitting:**

The use of a suction dredge to vacuum up the bottom of creeks and streams as part of a gold mining operation has been under intense scrutiny by the legislature and courts over the last several years. The multiple and serious environmental impacts of this technology have been well documented. The impact of the suction dredge machines on mercury mobilization was established by research conducted by the USGS in the South Yuba River in the last decade. This research established that the contaminated plume that is emitted by the suction dredge violates Clean Water Act standards, and the California Toxics Rule.

A moratorium on the issuance of permits for this activity, enacted first in 2009 and extended in 2012, has been the subject of a recent legal decision which has clouded the issue of the legality of suction dredge mining. This ruling about suction dredge mining, regarding whether federal law pre-empts state law in regulating suction dredge mining on federal mining claims, has called into question California's current moratorium on this form of recreational gold mining.

### **Next Steps:**

#### **I. Reform recreational suction dredge mining law.**

Senator Ben Allen has introduced SB 637 to clarify the state's regulatory structure to ensure that recreational suction dredge mining permits adequately protect water quality in the State.

#### **II. Pre-SMARA Legacy Mine Reclamation**

There are 47,000 abandoned mines in the state, 2/3 of them on federal land. All of them present potential physical hazards, and about 10% present chemical hazards. Regulations around the reclamation of legacy mines that ceased operation before 1976 are the jurisdiction of a variety of governmental agencies:

- **Lead Agencies** such as cities or counties that have legacy, abandoned mines in their jurisdiction play a key role in identifying and taking any cleanup of a mine through permitting. For example, when the Nevada County Board of Supervisors became concerned about a legacy copper mine in their county inside the Spenceville Wildlife Reserve and asked that action be taken, it was remediated within just a few years.
- DOC has an **Abandoned Mine Lands Program (AMLPL)** that has led the effort to address legacy, abandoned mines. The program uses funds generated by a \$5.00/oz. fee on gold, and \$0.10/oz. on silver recovered and sold into the market paid by current mine operations in the state. The AMLP uses this funding to inventory mine sites and remediate physical safety hazards, and participate in some contaminant remediation projects on public lands, however the funding is insufficient for the state to take on wider scale or more complex site remediation.
- The **US Environmental Protection Agency (EPA)** has used its authority and funds under the CERCLA/ "Superfund" program to take action on the most egregious contamination from individual mines. In addition, recent "brownfields" grants from the US EPA to the Gold Rush towns of Nevada City and Grass Valley have demonstrated how helpful these funds are to assess and remediate chemical hazards in those towns.
- **Cal/EPA has two agencies that work on legacy mine issues:**
  - Clean Water Act regulations, enforced in California by the **State Water Resources**

**Control Board (SWRCB)** and the **Regional Water Boards**, have a role in many legacy mine remediation activities. Water quality regulations have driven many of the mine remediation efforts undertaken in the state recently. Currently the Board is considering a new regulation on the amount of mercury that can be released from reservoirs (Total Maximum Daily Load or TMDL), which may impact how legacy mines that are discharging mercury into the watersheds above these reservoirs are managed.

- **The CA Department of Toxic Substances Control (DTSC)** has regulatory authority over soil contaminants such as lead, arsenic and other heavy metals often associated with legacy mine or mill sites. They have a regulatory process for assessing sites prior to development that is based on the end use of the property in question.

The different regulatory focus of each agency creates different priorities and assessment methods for legacy mines. For example, mercury in soil is regulated by DTSC using certain criteria, mercury dissolved in water it is regulated by SWRCB with different criteria, atmospheric mercury is under jurisdiction of the air quality agencies, and once it enters into the food chain the Office of Environmental Health Hazard Assessment (OEHHA) takes the lead. Unfortunately, mercury regularly goes between all of these forms.

Unlike the traditional sources of pollution that most regulations were designed to address such as smokestacks or effluent pipes, ongoing contamination of water by toxic metals from legacy abandoned mines is not caused by ongoing industrial activities – instead, it is caused by rain and streams eroding surface materials at the legacy mine site. Storm water runs out of the forests, sometimes through old tunnels, and pours metal- or mercury-laden sediments into the river. For example, The Sierra Fund's project at the Malakoff Diggins State Historic Park has collected data that demonstrate that Humbug Creek, which drains the old hydraulic mining site, is carrying tons of mercury-contaminated sediment.

### **Issues of Concern**

There are several challenges to taking on the challenge of remediating California's legacy mines.

**Limited Funding:** Funding for legacy mine reclamation is scarce in California. Legacy mine reclamation activities in most states are funded through taxes on coal, but California is not eligible for these funds. Primary funding for mine reclamation in California has come from:

- Federal funds to remediate mines on USFS, BLM or National Park Service lands
- EPA brownfields funds for remediation of sites with development potential in towns
- Bond funds managed by various state agencies including the Sierra Nevada Conservancy. The Sierra Nevada Conservancy established a funding program that is the first to ever specifically target funds for legacy mine assessment and remediation activities on public lands.
- A fee collected by the State on gold and silver production.
- Lawsuit-driven mine cleanups using State general funds or other responsible party sources

**Liability Matters:** The Clean Water Act creates real challenges for landowners who may want to remediate their property in order to allow development. Currently, when a cleanup activity significantly reduces the amount of contamination discharging into the water using best available technologies and methods – but still fails to meet the Clean Water Act quantitative standards – the landowner has actually *increased* their liability even though there may be no viable way to meet these standards. In these cases, identification of best available technologies and methods and requirement that these standards be employed could be an acceptable way to reduce or eliminate liability. This holds true for any modern mine that is aiming to reopen on the site of a legacy mine – they will be held responsible for meeting

modern Clean Water Act standards after the mine is closed even if the pollution was from a historic source.

**Permitting a New Mine on and Old Mine:** This regulatory structure creates special challenges for legacy gold mines that were never properly reclaimed but whose owners hope to begin gold mining again at the former mine site. This challenge is made even more difficult when development occurred near these mines and communities have grown on top of the tunnels or ore bodies that are still loaded with gold.

An example of this issue is the current application to open a gold mine in a long-settled neighborhood on the San Juan Ridge in Nevada County. The community was built around a very scarred “moonscape” left behind from hydraulic mining in the late 1800s. In the midst of this mine-scarred landscape, an underground mine began operating in the area in the 1990s. Dewatering of the underground mine in order to get to the gold also dewatered the neighborhood wells including one serving the local elementary school. The mine closed in the mid-1990s. The high price of gold over recent years has revived interest in extracting that gold. In addition to concern about the operation once again beginning to pump out the water from underground in order to mine, and the potential impact of that on area wells, the neighbors are concerned that the current mine operator has no responsibility to clean up the mess left from 100 years ago as long as his surface impact does not impact the historic diggings. SMARA does not speak to the issues of legacy mine reclamation, however discussion of the new operator’s role in reclaiming these legacy mine wastes will be debated as part of the mine permit approval process.

**Due Diligence Prior to Public Acquisition of Toxic Assets:** As awareness of the chemical and physical hazards of legacy mines increases, it has become clear that in some cases the public has acquired hazardous lands without realizing it. For example, State Parks was given or acquired lands in the 1960s that were historically important mine sites, and only now are some of the hazards associated with those properties becoming apparent. Almost every old mine site has physical hazards that need to be understood prior to acquisition, and about 10% have some form of chemical hazard. Over the last several years The Sierra Fund has documented acquisition of legacy mine sites that were brought into public ownership, sometimes at a handsome price, without a prior, careful examination of the potential physical and chemical hazards that the public could be exposed to on the site. On the positive side, public ownership of these sometimes toxic assets does allow public funds and efforts to be dedicated to the remediation effort.

### **Steps in the Right Direction**

The Sierra Fund has built relationships with the leaders and institutions with a stake in mining to improve coordination around assessing and addressing these legacy mine issues. TSF’s Mining Working Group was formed in 2006 as part of creating our 2008 ground-breaking publication *Mining’s Toxic Legacy*. Different subsets of this Working Group have participated in a number of activities:

- **Pilot Projects:** There are some tantalizing opportunities for agencies, academics and communities to work together to address the challenges left behind by unreclaimed, legacy gold mines. For example, one of The Sierra Fund’s collaborative pilot projects involves an alphabet soup of partners including the California Department of Parks and Recreation and the Department of Conservation to assess Humbug Creek which receives the drainage from the Malakoff Diggings mining pit. The project will develop a viable plan to improve water quality in the creek, and remediate identified physical hazards.
- **Reclaiming the Sierra Conference:** The Sierra Fund’s Reclaiming the Sierra conference is a tool we developed to improve coordination and information exchange between partners not

only in government regulatory or land management agencies but also at academic, business, and nonprofit organizations, and with communities impacted by mine-scarred lands.

- **Legislative oversight hearings** have provided an important avenue for governmental agencies to provide coordinated and informative presentations to legislators. The 2014 hearing by the Assembly Committee Water, Parks & Wildlife Committee provided a forum for public conversation between the various stakeholders interested in mine reclamation.
- **New funding through watershed planning:** Communities experiencing impacts from unreclaimed mines are leveraging new resources. The Cosumnes, American, Bear, Yuba (CABY) Integrated Regional Water Management (IRWM) group has recently begun a series of coordinated projects at several legacy mine sites in their watershed. These projects range from remediating a mine on land owned by the USFS, to exploring the effectiveness of the Combie Reservoir mercury removal project by the Nevada Irrigation District, to The Sierra Fund's project that is developing management and engineering plans for potential implementation in Malakoff Diggins State Historic Park. These projects give everyone experience navigating regulatory procedures and requirements. Participants are able to share their valuable perspective and ideas on how to meet permitting and cleanup requirements more efficiently and effectively when implementing mine remediation.
- **CAMLAG:** Coordination has been improved by the re-invigoration of the California Abandoned Mine Lands Agency Group (CAMLAG), a governmental inter-agency forum for coordination and collaboration on resolving problems stemming from abandoned mines in California. CAMLAG includes federal, state, and local agencies and is convened by the DOC's AMLP.

## **Recommendations for Action: Reclaiming Legacy Mines**

To date there has not been much effort to reclaim legacy mines unless they have highly visible impact, such as the infamous Sacramento River fish kills from acid mine drainage from Iron Mountain Mine. Until recently the biggest concerns about legacy mines were physical hazards. Recent concern about the contribution of legacy mines to toxic mercury flowing into the Delta and San Francisco Bay, however, has built awareness of the need to reclaim mines that discharge into tributaries to these water bodies.

There is a real need to reform the policy framework in order to incentivize mine reclamation. The Sierra Fund has identified four strategic objectives to incentivize reclamation:

### **A. Improve coordination both among governmental regulatory agencies with jurisdiction over private and public land management and reclamation, and also with the academic, business, community, and conservation institutions with interest in legacy mine reclamation.**

A new approach is needed to address mine-scarred lands that can bring all the funding, expertise and resources of each local, state, and federal agency together with scientists and communities to create and implement specific restoration activities. This approach could establish a new, site-specific remedy to each situation, with a custom team composed of governmental, community, tribal and academic institutions leading each effort.

## Next Steps:

1. Create Joint Agency Task Force to coordinate implementation of selected pilot projects: The Sierra Fund believes that regulatory agencies need to coordinate their permitting around a handful of projects, and to agree upon common assessment standards and remediation practices for those projects. In particular, the California Department of Toxic Substances Control and the Water Boards, along with federal agencies, could benefit from an agreement across the board for common standards of assessment and remediation of selected pilot projects. Common standards are especially important as many abandoned mine sites cross boundaries to cover both land owned by the federal government and lands owned by either private individuals or the state. This effort could be led by a special task force of the Secretaries of Cal/EPA and the Natural Resources Agency in cooperation with federal agencies including the EPA, the BLM and the USFS.

For example, the task force could coordinate pilot projects at abandoned mines that use best available techniques on mine impacted lands (BATMILs) and get a special permit from impacted agencies that protects the project from liability under the Clean Water Act when these remediation activities are put in place and subject to long term monitoring requirements. This would allow a limited number of pilot projects on public land that use a permit process that allows the regulatory agencies to permit the project to ensure that it is implemented properly – and this permit could carry with it liability protection under the Clean Water Act for the project. This could be modelled after the Timber Harvest Plan (THP) process that is overseen by the California Department of Forestry and Fire Protection but requires input from Department of Fish & Wildlife and other local, state, and federal agencies prior to approval.

2. CAMLAG should coordinate and improve for collaboration among agencies, including helping create consistent methods of assessing and reclaiming legacy mines and mine waste, as well as prioritizing reclamation activities. This would be an excellent topic for the CAMLAG to discuss and bring forward some ideas on how to improve coordination. This could include formal MOUs between state and federal land managers and regulators, new common standards for remediation, or an agreed upon set of priorities for cleanup.
3. The State needs to create a process to ensure that lands purchased with public funds for public purposes are properly assessed for legacy mining chemical and physical hazards prior to acquisition. This new “due diligence” procedure needs to be in place before additional land acquisition grant programs are created.
4. The pending Statewide Mercury Program for reservoirs program now under development at the State Water Resources Control Board should be used as an opportunity for agencies to work with each other to ensure that the regulation directs some investment upstream of the reservoirs or in the reservoirs themselves to remove mercury where appropriate.

## **B. Develop funding sources for reclamation activities on both public and private lands.**

The State needs to develop additional sources of funding for mine remediation of legacy mines. There are many opportunities that deserve evaluation for action. While most major acid mine drainage problems have been addressed in the state (for example, numerous mines in the Shasta District), hundreds, if not thousands, of polluting and dangerous abandoned mines still litter the landscape and pollute water, endangering aquatic and human life. The State needs adequate funding, and funded partners, over the next 20 years to address priority cleanups that still remain.

The State gold and silver fees and voter-approved Water Bond (Proposition 1) have money that could be used for this purpose. This could be a modest beginning in providing funds for legacy mines contributing mercury to California's watershed.

Another source of funds could be use of the Pollution Credit Finance Authority to allow downstream communities to contribute to upstream mine remediation. This could stop the mercury at its source and reduce contamination flowing into the San Francisco Bay and Delta. Investing in testing methods for reducing mercury upstream and assessing the results in the downstream water column and fish tissues will help guide financing of proven remediation strategies in the future.

### **Next Steps:**

1. Raise the \$5.00/oz. gold fee in California to \$20/oz., and tie future changes in the fee to the price of gold. Use these funds to:
  - Assess, plan and implement remediation of chemical hazards from mining on public lands;
  - Research and identify remediation technologies and practices that address mercury discharge; and
  - Educate and train local government and nonprofit organizations that own a legacy mine with physical and/or chemical hazards about reclamation.
2. Explore the potential for a small gold fee on the retail gold consumer transaction and apply these funds to remediation of legacy/abandoned mines just like the fee on mined gold.
3. Target new Water Bond funds for pilot projects that contribute to knowledge about how most effectively to treat mercury-contaminated watersheds. The grant programs to implement the bond need to be shaped to support legacy mine remediation in upstream watersheds including sources such as legacy mines on public land, or removing mercury from sediments that have been trapped behind reservoirs.
4. Seek support from the philanthropic and business community to help fund efforts to “prove” environmentally sound, effective technologies and protocols that remediate mercury from legacy gold mines in order to qualify for Pollution Credit Finance Authority funding opportunities.
5. Support adequate AML program budgets at the federal land management agencies so that the USFS and BLM can continue to partner with the State in prioritizing and funding AML remediation over the next 20 years.

### **C. Create new incentives for mine reclamation using best available technologies and practices for responsible and pro-active mine reclamation activities that are protected from liability under the Clean Water Act.**

Storm water discharge from legacy mine lands needs a different form of regulation than discharge from pipes or smokestacks. Fundamental to this new regulatory mechanism is the ability to identify best available technologies and management practices – BATMILs – in a consistent way for the unique circumstances of legacy mine reclamation. Another key element of the mechanism must be that measurable benefits must accrue to the public as a direct result of the reclamation activity. Finally, there needs to be vigorous oversight of both the reclamation activity as it is implemented and how it is monitored over the long run.

## Next Steps:

1. Create a new mechanism that will allow landowners to use best available technologies and practices to treat storm water that is discharging from legacy mines and mine scarred lands without increasing their liability. One potential way to approach this would be to ask the legislature to create a new mechanism or non-profit structure in California that has the ability to do reclamation without incurring liability if certain methods and criteria are met. The “arm’s length” nature of the “third-party cleanup” could change the nature of the liability associated with the cleanup. A crucial element of this would be the ability to document public benefit from the remediation action, such as if the mine-scarred land is publicly owned or is owned by a non-profit such as a land trust. Further discussion is needed to help refine how this mechanism would work.
2. Based on the success of permitting the pilot projects mentioned earlier, regulatory agencies could create a process to accept BATMILs to either replace or be used in conjunction with quantitative measures (such as amount of mercury in the water column) when creating regulatory actions. This will help incentivize landowners, whether public or private, to take action to improve water quality discharge from storm water flowing through legacy mines and into the State's waters.

