

About Us

[Overview](#)

[Background](#)

[Milestones and Ongoing Program Activities](#)

[Expertise and Project Development](#)

[Publications - Completed Inventories and Reports](#)

[Critical Partnerships and Organizations in California](#)

[Datasets](#)

Overview

The Department of Conservation's (Department) Abandoned Mine Lands Program (AMLP) was created in 1997 to identify and address the safety and environmental contamination hazards from legacy abandoned mines, those mines that ceased operation before state and federal laws required reclamation of mined land. The Department is part of a state and national network of abandoned mine lands programs and leads the California Abandoned Mine Lands Agency Group (CAMLAG), an informal state-level interagency coordination forum that includes federal, state, and local government agencies.

The unsecured aging infrastructure of California's legacy abandoned mines poses significant physical and potential contamination hazards to the health and safety of humans and the environment. Abating the hazards posed by these mines falls under the jurisdiction of multiple agencies. Although property owners, including private owners, are responsible for remediating the hazards, some may lack financial resources to address the issues.

The Department provides expertise and works closely with its state partners and other state and federal agencies and departments on closures and clean ups of hazardous legacy abandoned mines. Since 2006, the Department's primary funding source for remediating hazards at abandoned mines has come from federal funding and statutorily authorized fees collected on gold and silver mined in California. The funds are used to increase the number of remediation activities being performed across all publically-owned land, securing public safety and addressing environmental contamination.

Background

California's mining history, prior to enactment of mine permitting and reclamation requirements in 1975, has left California with tens of thousands of legacy mines. Those mines can pose safety hazards to humans and wildlife and environmental contamination in the form of mercury pollution, increased stream sediment, acid mine drainage, metals, and asbestos and arsenic contamination, often resulting in negative impacts on water quality (Figure 1).

In 1997, the AMLP was created within the Department's Office of Mine Reclamation in order to address the safety hazards, environmental pollution, and public liability risk from legacy abandoned mines located on public land in California, in particular those that existed before the 1975 enactment of the Surface Mining and Reclamation Act (SMARA). The AMLP assesses mine features on public lands to gather information about these potential hazards, the potential

cultural significance of the site, and the potential wildlife habitat at each site, as well as administers the state's Abandoned Mine Reclamation and Mineral Fund (AMRMF), which is used to support abandoned mine remediation throughout the state. The information generated by the AMLP is used by public land-management agencies to prioritize sites for remediation, conduct assessments to comply with the California Environmental Quality Act (CEQA) and National Environmental Policy Act, and finally, fund and implement mine hazard remediation projects.

There are many types of concerns with legacy abandoned mines.

1. Encroaching urban population
2. Rural community brownfields
3. Environmental contamination
4. Underground and surface hazards – injury and fatality



Bat gate installed at Islander Mine, San Bernardino Co.



Child playing in arsenic-laden tailings from Lava Cap Mine, Nevada Co. Photo: Dan Ziarkowski, DTSC.

5. Sensitive wildlife exposed to threats
6. Archeological and cultural resources preservation threatened
7. Vandalism of publicly-funded closures

Figure 1. Examples of hazards and concerns posed by legacy abandoned mines in California.

Milestones and Ongoing Program Activities

1997 – The Office of Mine Reclamation establishes the Abandoned Mine Land Program (AMLP) to identify hazardous legacy mines statewide. Legacy mines are those that were mined and abandoned before permits and the Surface Mining and Reclamation Act required that mined lands be left in a useful and safe condition for future generations.

2000 – Issued first report to the Governor and Legislature on the magnitude and scope of environmental and safety hazards from legacy mines in California. This report established baseline data for the state and showed there were many such mines throughout California.

2002 – Completed first closures of hazardous abandoned mine openings on public land to protect public safety.

2003 – Legislature established a fee of \$5 per ounce of gold and ten cents per ounce of silver mined to remediate hazards or complete reclamation of abandoned and legacy mines in California.

2009 – Conducted an assessment of legacy abandoned mines on California state-owned lands, which identified potential sites for further investigation or remediation.

2016 – Since 1997, physically closed 1,338 hazardous mine openings. These openings were either shafts or adits that could have caused serious or fatal injuries.

Expertise and Project Development

The Department is a partner with federal and state agencies in the remediation of legacy abandoned mines located on public land. Click [here](#) for a list of agencies with which the Department has collaborated. In general, once a regulatory or a public land management agency has identified a contaminated legacy mine site or hazardous feature that requires remediation, several factors combine to provide the resources and authorities needed for the remediation, including:

- 1) regulatory authority,
- 2) identification of a priority hazard, and
- 3) funding

Developing a remediation project for a legacy mine site includes writing the project scope and phases, project schedule, and budget.

While the Department does not own or manage lands, it has a lead role in coordinating information about legacy abandoned mines in California, and providing funding, staff, and technical expertise to inventory and remediate unsafe or polluting mines.

For example, the AMLP is partnering with the United States Forest Service through a \$75,000 grant from the Sierra Nevada Conservancy's Proposition 84 grant program to develop a

Preliminary Assessment and Site Inspection (PA/SI) to address mercury contamination for the Robinson Mine and stamp mill in the Plumas National Forest in Plumas County. The AMLP and the Department's Office of Mine Reclamation site revegetation experts are also preparing a revegetation and mulching plan under a \$449,789 agreement with the USFS for the 100-acre Walker Mine tailings in the Plumas National Forest. Other funding and technical support include \$28,000 from the AMRMF (gold and silver fees) to address erosion rates and release of mercury-laden sediment from the Malakoff Diggins State Park into nearby streams and rivers. Additional support is also being provided to the California State Lands Commission (CSLC) to perform remediation of safety hazards and identification of potential contaminant hazards at legacy mine sites on CSLC properties.

Publications - Completed Assessments and Reports

In 2000, the Department published *California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State*.

In 2003, the Department published the *Abandoned Mine Lands Assessment of the North Yuba Watershed* under a grant from the California Bay Delta authority. (Requires Adobe Reader)

In 2009, the California Natural Resources Agency issued the *Inventory and Assessment of Abandoned Mines on California Agency-Owned Lands*.

Critical Partnerships and Organizations in California

Through the end of the 2014-2015 fiscal year, the AMLP, in partnership with more than two dozen local, state and federal partners, completed over 1,338 safety closure projects using a combination of federal and state funds, including funds received from annual allocations of gold and silver fees. The AMLP maintains data related to the remediation of these features that include the cost of each closure of hazardous abandoned mine features. Over the last five fiscal years, the state has provided \$6.7 million dollars in base program and AMRMF funding, the BLM over \$3 million, the NPS over \$2 million, and the USFS over \$710,000, which the Office of Mine Reclamation has directed for assessment and remediation activities. Funding from gold and silver fees has leveraged funding from various categories of public agencies, where modest contributions of state funding have leveraged additional federal funding. All told, the funding partnerships have acted synergistically to attract federal contracts, build state capacity, and increase the number of remediation projects being performed across all public-land ownerships, securing public safety and addressing environmental contamination.

The Department is part of a state and national network of what are known as "abandoned mine lands" programs, including at the national level with membership in the National Association of Abandoned Mine Land Programs. At the state – level, the Department leads the CAMLAG, which has a charter, updated in 2014, that defines its purpose and role in addressing legacy mines in California. The Charter states that CAMLAG:

- Takes a leadership role in identifying, prioritizing, and planning ways to address high-priority areas identified by the group. This includes identifying opportunities to

collaborate and/or form partnerships in order to eliminate problems caused by legacy abandoned mines.

- Supports a more efficient and effective implementation of programs and tools used to address problems from legacy abandoned mines in California.
- Develops criteria to select and address legacy abandoned mine sites for remediation.

Other federal and state agencies play roles in identifying and remediating hazardous legacy abandoned mine sites (Figure 2). Following are brief descriptions of the role played by different state and federal agencies in California in addressing hazards from legacy abandoned mines.

Agencies Addressing Hazards & Pollution from Legacy Abandoned Mines

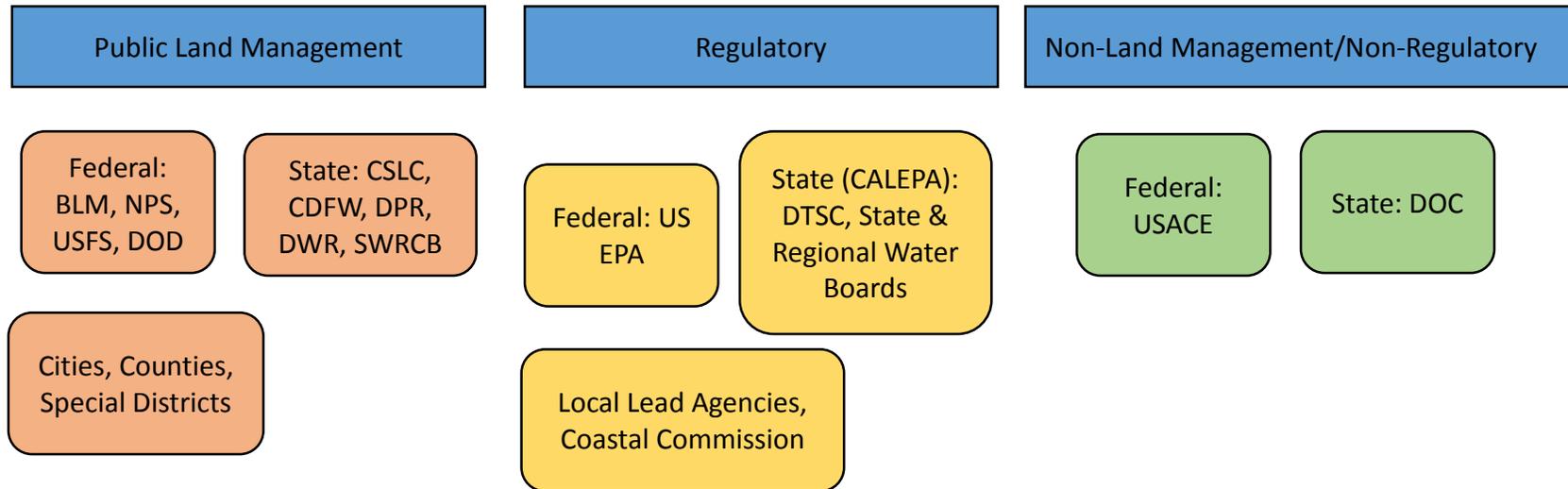


Figure 2. Federal, state, and local agencies that have various roles in the regulation, clean up, and administration of abandoned mines in California. See Tables 1 and 2 below for a list and description of the statutes and authorities covering legacy abandoned mine hazards.

California Natural Resources Agency

Department of Fish and Wildlife

The Department of Fish and Wildlife is charged with protecting fish and wildlife, where such natural resources are affected by abandoned mine land sites, and is involved in consultation and potential permitting where remediation or reclamation of legacy abandoned mine sites is being planned.

State Land Management Departments

The state of California owns and manages land with legacy abandoned mines, some of which showcase the states mining history and state parks. From 1997 through 2008, the AMLP assessed 341 legacy abandoned mine sites containing 5,135 features on State-owned lands.

California Environmental Protection Agency

State Water Resources Control Board

The State Water Resources Control Board and the Regional Water Quality Control Boards (Water Boards) have authority where mines adversely affect water quality. The Water Boards address legacy abandoned mines under the provisions of the Toxic Pits Cleanup Act, the Porter–Cologne Water Quality Act, and Section 13304 of the Water Code, which deals with the discharge of hazardous materials into surface or groundwater. Section 13260 of the Water Code requires all persons discharging wastes that could affect the quality of the waters of the state to file a report of the discharge to the appropriate regional board.

Department of Toxic Substance Control

The Department of Toxic Substance Control (DTSC) regulates sites that contain hazardous wastes that could escape into the surrounding environment, including the clean-up of hazardous substance releases. DTSC has a voluntary cleanup program that includes legacy abandoned mines, with screening criteria and established priorities as to potential hazards to public health or the environment. DTSC can also take action under the Health and Safety Code.

Federal Agencies

Land Management Agencies

In California, major federal land owners include the U.S. Forest Service, Bureau of Land Management (BLM), National Park Service, and Department of Defense. Some tribal lands fall under the oversight of the Bureau of Indian Affairs. Abandoned mine land remediation actions taken by federal landowners are taken as a property owner or under relevant state or federal laws.

U.S. Environmental Protection Agency

The U.S. Environmental Protection Agency (USEPA) regulates legacy abandoned mine land sites via the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA); the Resource Conservation and Recovery Act; and the Clean Water Act. CERCLA includes the provisions to establish hazardous waste sites eligible for Superfund listing and funding.

U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers' Reclamation of Abandoned Mine Sites Program, established under the Water Resource Development Act of 1999, (Section 560 of Public Law 106-53), provides funding allocated by Congress and technical expertise from its in-house technical staff to assist primarily Western states with legacy abandoned hard rock mines. This funding and expertise are provided to remediate legacy abandoned mine contamination that threatens water quality and to assist states in developing abandoned mine databases to improve states' identification and prioritization of legacy mines, and their mined land reclamation and management capabilities.

Local Lead Agencies and Private Landowners

Local lead agencies, such as cities and counties, have authority over legacy abandoned mines within their jurisdiction through nuisance laws and during the review of new projects. Lead agencies are required to comply with the CEQA when permitting projects within their jurisdiction. CEQA is a disclosure statute; therefore, the presence of a legacy mine at the site of a proposed project should be adequately disclosed during the process. The disclosed information should include the potential for the existence of physical or chemical hazards on the site. CEQA also has provisions that require consultation with the appropriate agencies, such as the Water Boards, the DTSC, and the County Public Health Department. If the proposed project would result in a significant effect or exposure of the public or environment to a hazard, then the effect should be mitigated as part of the proposed project and accomplished by the project proponents. The potential for the project to adversely affect natural or cultural resources would also need to be disclosed and mitigated because such resources may be found at a legacy mine site.

Private landowners, including public entities, have responsibility for hazards on their property. Several government codes require securing excavations, covering or fencing abandoned mine excavations on unoccupied public lands, or provide for Boards of Supervisors to order covering or fencing of abandoned excavations on unoccupied land, or permit local legislative bodies to declare as public nuisances and abate all abandoned excavations located upon private property. However, many of these statutes have been little used.

Table 1. Major State Laws Affecting Abandoned Mine Reclamation in California (Anon 1972, CMA 1999). Source: DOC 2000.

Law	Primary Requirements	Enforcement Summary
Surface Mining and Reclamation Act of 1975 (PRC Section 2710 <u>et seq.</u>)	Requires new and existing mines to have an approved reclamation plan and financial assurances sufficient to cover the estimated cost of reclamation. (Intended to prevent abandonment of mines, and to reclaim mined lands to a beneficial end-use.)	Mines without an approved reclamation plan or financial assurances are prohibited from operating. Financial assurances may be used by lead agencies to reclaim mines should operators fail to do so.
Porter-Cologne Water Quality Control Act, Water Code Section 13000 <u>et seq.</u>	Discharges of "waste" that could affect waters of the state subject to Waste Discharge Requirements, or waiver, by Regional Board.	Administrative and civil penalties and/or injunction.
	Discharges of "pollutants" from point sources to surface waters require National Pollutant Discharge Elimination System permit issued by Regional Board in form of Waste Discharge Requirements under USEPA delegation.	Administrative and civil penalties and/or injunction, as well as criminal penalties. Can apply to discharges from clean up (e.g., Penn Mine).
	Discharge permits for storm water contaminated by contact with overburden, raw materials, intermediate products, finished products, and by-products, issued by State Board under USEPA delegation.	
	Discharges of "waste" that create or threaten to create a condition of pollution or nuisance subject to Regional Board cleanup or abatement order.	Administrative and civil penalties for violation. Injunction to comply. Regional Board may itself expend funds to remediate, which constitute a lien on the property.
Fish and Game Code Section 5650	Illegal to permit to pass to waters of the state any substance deleterious to fish, plant, or bird life, unless authorized by Regional Board Waste Discharge Requirements or a federal permit for which Clean Water Act Section 401 state certification issued.	Civil penalties, damages for injury to wildlife and habitat, clean-up costs, and/or injunction. Also misdemeanor fines and incarceration.

Law	Primary Requirements	Enforcement Summary
California Endangered Species Act, Code Section 2050 <u>et seq.</u>	Illegal to take state-listed endangered, threatened, or candidate species, except as authorized by California Department of Fish and Wildlife.	Misdemeanor prosecution: Fines and incarceration.
Fish and Game Code Sections 3511, 4700, 5050, 5515, among others	Take of any fully-protected species prohibited under all circumstances. Species include, but not limited to: American peregrine falcon, bighorn sheep, wolverine, blunt-nosed leopard lizard, limestone salamander, unarmored three spine stickleback, among many others.	Misdemeanor prosecution; fines and incarceration.
Proposition 65	Prohibits certain persons, in course of doing business, from knowingly discharging a chemical known to the state to cause cancer or reproductive toxicity into a source of drinking water, or onto land where it passes or probably will pass into water.	Civil penalties. Third party law-suits. May apply to "Good Samaritan" doing cleanup.
Toxic Pits Cleanup Act of 1984, Health & Safety Code Section 25208 <u>et seq.</u>	Addresses the regulation of "surface impoundments" containing hazardous liquids or hazardous wastes containing free liquids. Grants specific authorities to the State Water Resources Control Board and Regional Boards in order to protect the waters of the state from contamination. (See RCRA, 42 USC sec. 6901 <u>et seq.</u>)	SWRCB shall impose fees upon persons discharging into a "surface impoundment," shall assess penalties for non-compliance up to 100 percent of the original fee, shall issue cease and desist orders and remedial action for surface impoundments that do, or threaten to, contaminate the waters of the state.
Hazardous Substances Account Act (California Superfund), Health & Safety Code Section 25301 <u>et seq.</u>	Requires "potentially responsible parties" (PRPs) to remove and/or remediate actual and threatened releases of hazardous substances to the environment.	Department of Toxic Substance Control order to remove and/or remediate. Civil penalties for violation of DTSC orders. Triple damages for failure to comply with order based on finding of imminent and substantial endangerment to public health or welfare, and DTSC expends state funds. Cost recovery for DTSC expenditures of funds. Also injunctions.

Law	Primary Requirements	Enforcement Summary
California Health and Safety Code Section 115700(a)	Provides that a landowner must secure an abandoned mine excavation; however, this law is limited to excavations less than 1/2 acre in surface area and is rarely enforced.	Landowner guilty of a misdemeanor if they fail to secure the excavation site; rarely used.
California Health and Safety Code Section 115705	Boards of Supervisors may order the covering or fencing of abandoned mine excavations on unoccupied public lands; rarely enforced.	None.
California Health and Safety Code Section 115710	Boards of Supervisors may order the covering or fencing of abandoned excavations on unoccupied land whenever it appears that the excavation is dangerous to man or beast; rarely enforced.	None.
California Government Code Section 50231	Local government may declare as public nuisances and abate all abandoned excavations located upon private property.	The cost of the action is a special assessment against the parcel in question and can be recorded as a lien.

Table 2. Major Federal Laws Affecting Abandoned Mine Reclamation in California (Anon 1972, CMA 1999). Source: DOC 2000.

Law	Primary Requirements	Enforcement Summary
Clean Water Act (CWA), 33 USC. Section 1251 <u>et seq.</u>	National Pollutant Discharge Elimination System permits for discharges of pollutants from point sources to surface waters and storm water discharge permits. (See Porter-Cologne above).	Administrative and civil penalties and/or injunction, as well as criminal penalties. Third-party suits.
Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, and (Superfund) 42 USC. Section 9601 <u>et seq.</u>	USEPA may perform removal and/or remedial actions for releases of hazardous substances itself and seek reimbursement for potentially responsible parties (PRPs), or compel PRPs to clean up through administrative or judicial proceedings. Liability is strict, can be joint and several, and held to be retroactive.	USEPA abatement and/or cost recovery actions. Administrative Orders. Civil penalties for violation, with potential triple damages. Third-party suits. Damages for injuries to natural resources, by trustee agencies including California Department of Fish and Wildlife and federal agencies.
Endangered Species Act, 16 USC. Section 1531 <u>et seq.</u>	Illegal to take species listed as endangered or threatened by US Fish and Wildlife Service, except as authorized, including degradation of habitat that actually harms individuals of species.	Substantial civil penalties. Injunction. Third-party suits. Criminal penalties.
Resource Conservation and Recovery Act (RCRA) of 1976. 7 USC Section 1010 <u>et seq.</u> , 40 CFR Sections 280 and 281	Provides regulatory authority to USEPA for environmental remediation of sites containing, or suspected of containing, hazardous waste. May affect abandoned mine land properties associated with active sites.	Includes orders to correct any violation; civil and criminal penalties; fines, and/or imprisonment.

Law	Primary Requirements	Enforcement Summary
Clean Air Act of 1970, Amended 1990 42 USC Sections 7401-7671q et seq.	USEPA sets limits on airborne pollutants. Allows individual states to have stronger pollution controls. States develop State Implementation Plans (SIPs), used to target generators and clean up polluted areas.	Fee assessments; court injunctions and or civil penalty of not more than \$25,000 per day for each violation. Criminal penalties include fines up to \$1 million and imprisonment up to 15 years.
Air Quality Act of 1967 42 USC Section 7401	EPA sets limits on airborne pollutants. Allows individual states to have stronger pollution controls. States develop State Implementation Plans (SIPs), used to clean up polluted areas. Predecessor to Clean Air Act.	Administrative penalties to states for lack of enforcement; orders issued requiring compliance; civil and criminal penalties; fines, and/or imprisonment. Enforced under Clean Air Act of 1990.
National Historic Preservation Act of 1966 16 USC Section 470 et seq.	Provides process for registration of properties significant in national, state, and local history on National Register of Historic Places. Ensures planning considerations and recognizes state historic preservation initiatives and laws.	Environmental review may be required under CEQA if property is threatened by a project.

Datasets

Principal Areas of Mine Pollution (PAMP) & Topographically Occurring Mine Symbols (TOMS)

To request the PAMP and TOMS datasets please contact:

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