State Mining and Geology Board

Annual Report
2008-2009
(Includes Years 2000 – 2009)

Department of Conservation
Natural Resources Agency

December 2009

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Governor
State of California

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Secretary
Natural Resources Agency

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Acting Director
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Cover Photo: Historic Glory Hole Pit located at the northern end of the Cool Cave Limestone Quarry in El Dorado County. Photo by Will Arcand on September 15, 2008.

ANNUAL REPORT
of the
STATE MINING AND GEOLOGY BOARD

2008-2009

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ANNUAL REPORT
of the
STATE MINING AND GEOLOGY BOARD
2008-2009

OVERVIEW

The 2008-2009 Edition of the *Annual Report of the State Mining and Geology Board* is the first published Annual Report from the State Mining and Geology Board (SMGB) in seven years. Annual Reports are prepared for both the State Legislature and the Governor, as is provided for in statute [ref. Public Resources Code (PRC) Sections 674 and 2717]. Reporting periods follow the State's fiscal year calendar from July 1st of one year to June 30th of the following year.

A statewide moratorium on the publication of these types of annual reports was in effect between 2000 and 2007. This Report breaks from the traditional "Annual" Report in that it attempts to summarize the salient activities, events, and achievements of the past several years, notably, since publication of the SMGB's 1999-2000 annual report, while still providing information on the current status of the State's dynamic geology, abundant mineral resources and significant geologic hazards. This Report also provides some recommendations where the SMGB believes improvements can be made for the future well-being of the State's people and wise use of its natural resources.

In review of activities over the past seven years the SMGB, in concert with the Department of Conservation, the California Geological Survey (CGS) and the Office of Mine Reclamation (OMR), has been fully engaged in implementing the legislative mandates of the Surface Mining and Reclamation Act of 1975 (SMARA), the Alquist-Priolo Earthquake Fault Zoning Act (A-P EFZ Act), and the Seismic Hazards Mapping Act (SHMA).

The A-P EFZ Act was signed into law following the destructive 1971 San Fernando earthquake. The intent if the A-P EFZ Act is to insure public safety by prohibiting the siting of most structures for human occupancy across the traces of active surface faults. Since 2000, the SMGB received public comment on 15 new or updated maps. In 2007, the SMGB also established a Technical Advisory Committee to review the A-P EFZ Act and the SMGB's regulations in light of the current State of engineering and geological science.

The SHMA was enacted to protect public safety from the effects of strong ground shaking, liquefaction, landslides, or other ground failures, and other ground hazards caused from earthquakes. The programs and mandates closely resemble those of the A-P EFZ Act. The SMGB received public comment on 74 Preliminary Seismic Hazard Maps released in October 2001 and May 2008. In 2004, the SMGB established a Seismic Hazards Mapping Act Advisory Committee (SHMAAC) to prepare a special section on grading techniques and standards for incorporation into an updated and revised version of Special Publication No. 117. This subcommittee reported to the SMGB through its Geohazards Committee, and was involved with review and modification to CGS's *Guidelines for Evaluating and Mitigating Seismic Hazards in California* (Division of Mines and Geology Special Publication 117). The subcommittee was composed of ten professional members with various scientific, engineering, governmental, and

business specialties. Their efforts culminated in CGS Special Publication 117A titled "Guidelines for Evaluating and Mitigating Seismic Hazards in California," dated 2008.

Local lead agencies (cities and counties with surface mines within their jurisdictions) have primary responsibility for implementing SMARA. Each of these lead agencies must have a surface mining ordinance certified by the SMGB as being in accordance with SMARA. There currently are 109 SMARA lead agencies in California. At the end of this reporting period (June 30, 2009) the SMGB has exercised full SMARA authority for 10 jurisdictions that possessed no SMARA mining ordinances. In addition, the SMGB served as a lead agency under SMARA for two counties, six cities, and for 12 marine dredging operations within the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC). Between 2001 and 2002, The SMGB assumed full SMARA lead agency authority under PRC Section 2774.4 for El Dorado County and Yuba County. Such authority must last for a minimum of three years, and continues to date. This authority includes responsibilities for reviewing and approving reclamation plans, financial assurances and environmental studies, and conducting annual mine inspections. The SMGB also considered assumption of SMARA lead agency authority for the City of Irwindale, and the Counties of Butte, Sacramento, San Bernardino, Santa Clara and Siskiyou.

The SMGB is also responsible pursuant to SMARA for reviewing and accepting mineral resource lands classification reports prepared by CGS, and designation of such lands of regional significance. Since 2000, the SMGB has reviewed and accepted 15 classification reports. Since 2008, the SMGB has revived its designation program, and as of June 2009, has commenced with the designation, and termination of designation, of certain mineral resources lands of regional significance in two Production-Consumption regions. The SMGB also reviews and re-certifies updated mining ordinances and recognizes Mineral Resources Management Plans (MRMP). Since 2000, the SMGB reviewed and re-certified updated SMARA mining ordinances for 21 lead agencies (thirteen cities and 8 counties). In addition, 10 MRMPs have been recognized by the SMGB since 2000.

During the reporting period, the Department of Conservation's OMR issued 13 administrative penalties to individual surface mine operators. One of these operators appealed their penalties to the SMGB. In this case, the SMGB upheld the grounds for the penalties.

Several requests for exemptions from SMARA were received by the SMGB. Eleven proposed exemptions from the requirements of SMARA under PRC Section 2714(f) were considered by the SMGB during the period between July 2000 and June 2009.

In February 2008, the SMGB in its capacity to provide public information expressed its support of adding Earth and Space Science to the University of California's "d" laboratory requirement. The SMGB has certain responsibilities on federal matters pertaining to mining. In March 2008, the SMGB held a public hearing to receive public comment on mining reform in relation to reform of the 1872 Mining Law. In 2003, the SMGB formulated regulations for the backfilling of open-pit metallic mines, and considered an amendment in 2006. In 2007 and 2008, the SMGB formulated regulations for administrative procedures for determination of vested rights by the SMGB when serving as a SMARA lead agency.

The SMGB established a series of Information Reports which provide fundamental information for the SMGB's information when considering policy. Since 2007, six Information Reports have been published and made available on the SMGB's website.

The SMGB restates in its Observations and Recommendations section of this report where it believes the Legislature could address SMARA to increase efficiency and effectiveness in carrying out the Legislature's stated intentions of the statute and regulations. The SMGB also recommends that consideration be given to providing a steady and reliable funding source that will allow continued mapping activities under the A-P EFZ Act and the SHMA.

Stephen M. Testa
Executive Officer

STATE MINING AND GEOLOGY BOARD
ANNUAL REPORT FOR 2008 – 2009

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INTRODUCTION

ORGANIZATION AND RESPONSIBILITIES OF THE SMGB

The *State Mining and Geology Board* (SMGB) was established in 1885 as the *Board of Trustees*. Its purpose was to oversee the activities of the State Mineralogist and the Bureau of Mines (formerly the Division of Mines and Geology, and now the California Geological Survey (CGS), the State's geological survey, which were created by the Legislature five years earlier. The general policy for the CGS is established by the SMGB. These responsibilities recognize the impacts that California's complex geology, large amounts of federally managed lands, high mineralization, and potential for geologic hazards have on the State's economy, land use, and public safety.

Today's SMGB is composed of nine members appointed by the Governor, and confirmed by the Senate, for four-year terms. By statute, SMGB members must have specific professional backgrounds in geology, mining engineering, environmental protection, groundwater hydrology and rock chemistry, urban planning, landscape architecture, mineral resource conservation, and seismology, with one non-specialized member representing the public.

To enable the SMGB to meet its responsibilities most effectively, it has established standing committees to gather information and formulate recommendations on a variety of topics. These committees include the Geohazards Committee, the Mineral and Geologic Resources Committee, the Policy and Legislation Committee, and the Surface Mining Standards Committee. The full SMGB, and these committees, meet in regularly scheduled sessions on a monthly basis.

The SMGB has one currently active advisory group which is the Alquist-Priolo Technical Advisory Committee (A-P TAC). This subcommittee reports to the SMGB through the Geohazards Committee, and is involved with considering current knowledge in engineering and the geological sciences, and their impact on the A-P EFZ Act. The subcommittee is composed of 16 professional members with various scientific, engineering, governmental, and business specialties. The subcommittee members are part time, and are not paid for their services. Since 2007 the A-P TAC has met on nine occasions, and currently is in the process of preparing their report and recommendations for the Geohazards Committee.

The SMGB is housed within the Department of Conservation, and is granted certain autonomous responsibilities and obligations under several statutes. The SMGB's general authority is granted under Public Resources Code (PRC) Sections 660-678 (Appendix A). Specifically, PRC Section 662(b) requires all SMGB members to "represent the general public interest". 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.

SURFACE MINING AND RECLAMATION ACT OF 1975

Extraction of minerals in a responsible manner is essential to the continued economic well-being of the State and to the needs of society, and the thoughtful reclamation of mined lands is necessary to prevent or minimize adverse effects on the environment and to protect the public health and safety.

Under SMARA, the SMGB is authorized and directed to represent the State's interests in the development, utilization, and conservation of the State's mineral resources, the reclamation of mined lands, and federal matters pertaining to surface mining within the State.

Principal populations served:

- 109 "Lead Agencies" (counties and cities), with authority over surface mining operations within their jurisdictions;
- Over 1,400 reporting surface mining operations within the State;
- Department of Conservation's Office of Mine Reclamation;
- Department of Conservation's California Geological Survey.

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

Under this Act, the SMGB is authorized and directed to represent the State's interests in establishing professional guidelines and standards for geological and geophysical investigations and reports produced by the CGS, public sector agencies, and private practitioners. The SMGB is also authorized to develop specific criteria through regulations that shall be used by affected lead agencies in complying with the provisions of the A-P EFZ Act so as to protect the health, safety and welfare of the public.

The A-P EFZ Act (PRC, Chapter 7.5, Section 2621 through Section 2630) is intended to provide policies and criteria to assist cities, counties and State agencies in the exercise of their responsibilities to prohibit the location of developments and structures for human occupancy across the trace of active faults as defined by the SMGB. Further, it is the intent of the A-P EFZ Act to provide the citizens of the State with increased safety and to minimize the loss of life during and immediately following earthquakes by facilitating seismic retrofitting to strengthen buildings, including historical buildings, against ground shaking.

Principal populations served:

- City, county and State agencies having jurisdictions over zoning ordinances, building codes, and general plan developments;
- Land developers and contractors;
- California Geological Survey;
- Professional geological, geophysical, and engineering consulting community.

SEISMIC HAZARDS MAPPING ACT

Under the Seismic Hazards Mapping Act (SHMA), the SMGB is authorized to provide policy and guidance through regulations for a statewide seismic hazard mapping and technical advisory program to assist cities, counties, and State agencies in fulfilling their responsibilities for protecting the public health and safety from the effects of strong ground shaking, liquefaction or

other ground failure, landslides and other seismic hazards caused by earthquakes, including tsunami and seiche threats.

The SHMA (PRC Chapter 7.8, Section 2690 through Section 2699.6) establishes the authority to provide programs to identify and map seismic hazard zones in the State so that cities and counties can adequately prepare the safety element of their general plans, and to encourage land use management policies and regulations that reduce and mitigate those hazards so as to protect public health and safety.

Principal populations served:

- City, county and State agencies having jurisdictions over zoning ordinances, building codes, and general plan developments;
- Land developers and contractors;
- California Geological Survey;
- Professional geological, geophysical, and consulting community.

MISSION STATEMENT

"The mission of the State Mining and Geology Board is to represent the State's interest in the development, utilization and conservation of mineral resources; reclamation of mined lands; development and dissemination of geologic and seismic hazard information; and to provide a forum for public redress."

SMGB ACTIONS PURSUANT TO THE

ALQUIST-PRIOLO EARTHQUAKE FAULT ZONING ACT

The Alquist-Priolo Earthquake Fault Zoning Act (A-P EFZ Act - PRC Sections 2621 et seq.) provides for the mapping by the CGS (formerly referred to as the Division of Mines and Geology, or DMG) of "Earthquake Fault Zones" along the surface traces of active faults in California. Mapping is done according to policies established by the SMGB. These Earthquake Fault Zones Maps are provided to local governments for their land-use planning and decision making.

The A-P EFZ Act was signed into law following the destructive 1971 M_w 6.6 San Fernando earthquake. This law initially was designated as the Alquist-Priolo Geologic Hazards Zones Act. In May 1975 it was re-named the Alquist-Priolo Special Studies Zones Act. In January 1994, the Act was given its current name. Information regarding the A-P EFZ Act and an index of the mapped Earthquake Fault Zones is available in CGS Special Publication No. 42 (Revised 1997, with supplements added in 1999).

The intent of the A-P EFZ Act is to insure public safety by prohibiting the siting of most structures for human occupancy across the trace of potentially hazardous faults. The A-P EFZ Act prohibits the construction of most structures for human occupancy, as defined, across the trace of an active fault. Lead agencies (cities and counties) affected by these Zones must regulate certain construction developments within the Zones. Lead agencies must not issue development permits for sites located within Earthquake Fault Zones until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting.

In California, there are about 150 named faults with Holocene displacement. This is a minimum number because it is based on the naming of fault zones, not individual faults. The amount of actual land surface covered by clearly mapped active fault zones is on the order of 0.0089 percent (or 1,381 square miles) of the total land surface of California; the actual area that is unbuildable is much less. These zones are typically 1,000 feet in width (0.189 mile), but in practice are usually greater, with an average width of 0.306 miles. The total linear miles of zoned active faults in California is about 4,500.

As of July 2006, 559 Official maps of Earthquake Fault Zones have been issued by CGS. Of these, 160 have been revised since their initial issue, and four maps have been withdrawn. Thirty-six counties and 104 cities are affected by the existing Earthquake Fault Zones (Table 1). Since July 1, 2000, 14 additional maps have been generated, with one map being revised (Table 2). A typical Earthquake Fault Zone Map, for the Corona South Quadrangle Revised Official Map Effective May 1, 2003, is shown in Figure 1.

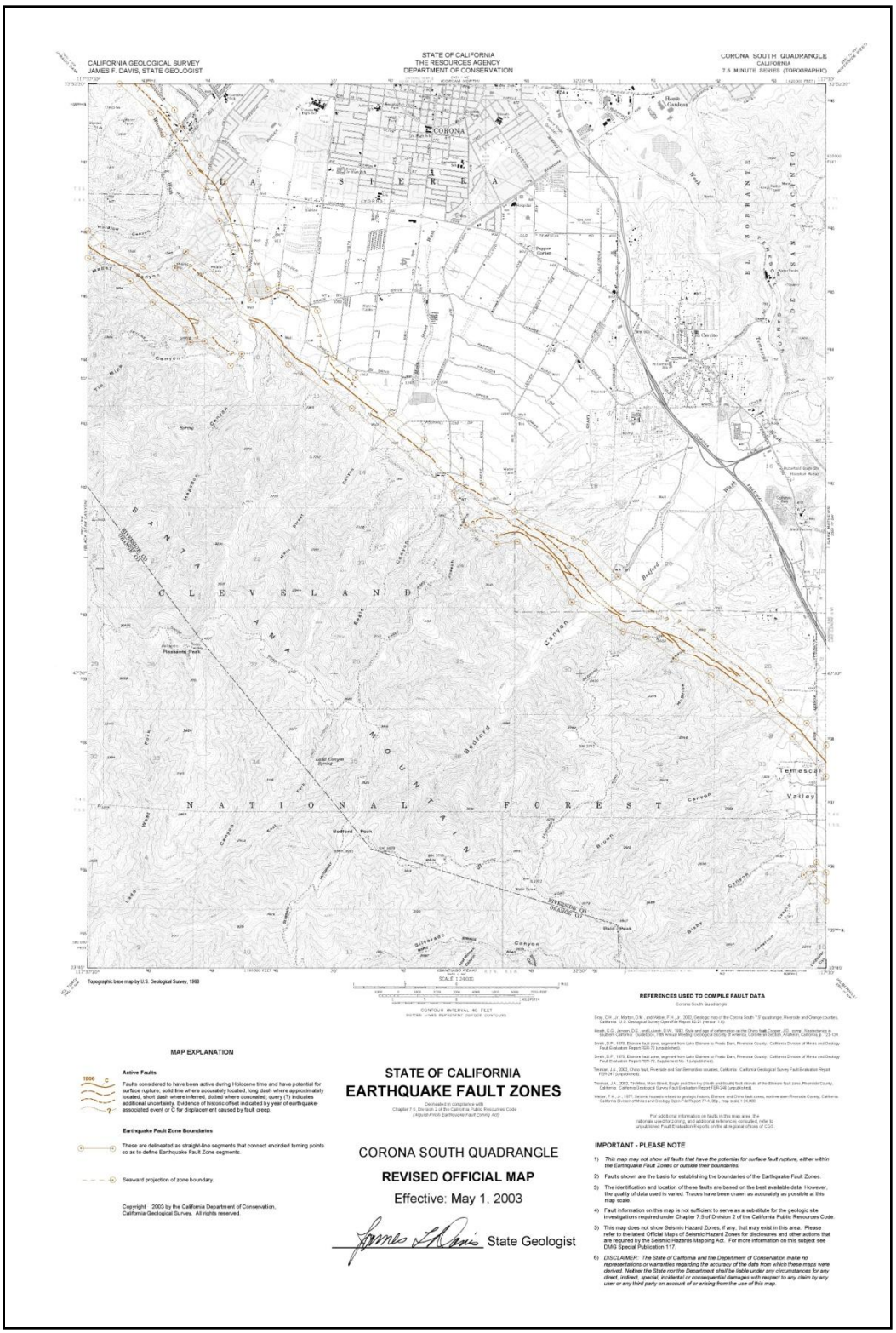

Figure 1. Earthquake Fault Zone Map for the Corona South Quadrangle Revised Official Map Effective May 1, 2003.

The A-P EFZ Act affects 104 Cities and 36 Counties as illustrated in the table below (Table 1).

Table 1 Cities and Counties Affected by Earthquake Fault Zones as of August 16, 2007			
Cities (104)			**Counties (36)**
American Canyon	Hemet	San Bruno	Alameda
Arcadia	Highland	San Diego	Alpine
Arcata	Hollister	San Fernando	Butte
Arvin	Huntington Beach	San Jacinto	Contra Costa
Bakersfield	Indio	San Jose	Fresno
Banning	Inglewood	San Juan Bautista	Humboldt
Barstow	La Habra	San Leandro	Imperial
Beaumont	La Habra Heights	San Luis Obispo	Inyo
Benicia	Lake Elsinore	San Marino	Kern
Berkeley	Livermore	San Pablo	Lake
Bishop	Loma Linda	San Ramon	Lassen
Brea	Long Beach	Santa Clarita	Los Angeles
Calimesa	Los Angeles	Santa Rosa	Marin
Camarillo	Malibu	Seal Beach	Mendocino
Carson	Mammoth Lakes	Signal Hill	Merced
Cathedral City	Milpitas	Simi Valley	Modoc
Chino Hills	Monrovia	South Pasadena	Mono
Coachella	Moorpark	South San Francisco	Monterey
Colton	Moreno Valley	Temecula	Napa
Compton	Morgan Hill	Trinidad	Orange
Concord	Murrieta	Twentynine Palms	Riverside
Corona	Oakland	Union City	San Benito
Coronado	Pacifica	Upland	San Bernardino
Culver City	Palmdale	Ventura (San Buenaventura)	San Diego
Daly City	Palm Springs	Walnut Creek	San Luis Obispo
Danville	Palo Alto	Whittier	San Mateo
Desert Hot Springs	Pasadena	Willits	Santa Barbara
Dublin	Pleasanton	Windsor	Santa Clara
El Cerrito	Portola Valley	Woodside	Santa Cruz
Fairfield	Rancho Cucamonga	Yorba Linda	Shasta
Fontana	Redlands	Yucaipa	Siskiyou
Fortuna	Rialto	Yucca Valley	Solano
Fremont	Richmond		Sonoma
Gardena	Ridgecrest		Stanislaus
Glendale	Rosemead		Ventura
Hayward	San Bernardino		Yolo

Table 2 Summary of Public Hearings on Preliminary Earthquake Fault Zone Maps Held by SMGB			
Quadrangle	Affected Cities and Counties	Number of Preliminary Maps	SMGB Pubic Hearing Date
Corona North and Corona South Quadrangles (City of Corona), Deadman Lake NW, Deadman Lake SE, Deadman Lake SW, Hector, Hidalgo Mountain, Lavic Lake, Lavic Lake SE, Morgan's Well, Sleeping Beauty, Sunshine Peak, and Prado Dam Quadrangle (San Bernardino County), and Point Loma Quadrangle (San Diego County).	**City of Corona, and San Bernardino and San Diego Counties.**	**14**	**January 16, 2003**
Malibu Beach Quadrangle (Los Angeles County)	**Los Angeles County**	**1**	**February 16, 2007**

Under the A-P EFZ Act, there is a 90-day review period upon the issuance of Preliminary Earthquake Fault Zone Maps by the State Geologist, and the SMGB conducts public hearings within the affected lead agencies to receive technical comments about the maps. These comments are reviewed by the SMGB's Geohazards Committee, and then forwarded to the State Geologist for consideration for inclusion in the Official Earthquake Fault Zone Maps. The approval of a project by a city or county must be in accordance with the policies and criteria established by the SMGB, and geologic reports prepared by affected lead agencies must be in sufficient detail as to meet the SMGB's policies.

The SMGB's recent interest in a review of lead agencies affected by the A-P EFZ Act originated from a request from the City of Camarillo in the Fall of 2006 (Figure 2). The City of Camarillo's request was two-fold. The City requested interpretation of the SMGB's Policies and Criteria, notably, CCR Section 3603(a) which states "*No structure for human occupancy, identified as a project under Section 2621.6 of the Act, shall be permitted to be placed across the trace of an active fault. Furthermore, as the area within fifty (50) feet of such active fault shall be presumed to be underlain by active branches of that fault unless proven otherwise by an appropriate geologic investigation and report as specified in Section 3603(d) of this subchapter, no such structure shall be permitted in this area* ". The City also requested an opinion by the SMGB as to whether the A-P EFZ Act allowed structural mitigation across "minor" faults within an Earthquake Fault Zone.

Figure 2. Aerial photograph showing extensive development within an AP EFZ (shown in red) within the jurisdiction of the City of Camarillo (aerial image from Google Earth 2009).

Currently, the A-P EFZ Act prohibits the construction of most structures for human occupancy, as defined, across the trace of an active fault. Lead agencies affected by these Zones must regulate certain construction developments within the Zones. As noted above, lead agencies must not issue development permits for sites located within Earthquake Fault Zones until geologic investigations demonstrate that any structures for human occupancy would not be threatened by surface displacement from future faulting.

In response to the City of Camarillo's inquiry, a Technical Advisory Committee (AP TAC) was formed in 2007**.** The purpose of the AP TAC was to specifically address interpretation of the SMGB's Policies and Criteria, notably, CCR Section 3603(a) which states "*No structure for human occupancy, identified as a project under Section 2621.6 of the Act, shall be permitted to be placed across the trace of an active fault. Furthermore, as the area within fifty (50) feet of such active fault shall be presumed to be underlain by active branches of that fault unless proven otherwise by an appropriate geologic investigation and report as specified in Section 3603(d) of this subchapter, no such structure shall be permitted in this area* ." In addition, the AP TAC was to review the current science and engineering, in regards to considering structural mitigation across "minor" faults within an Earthquake Fault Zone. Its work is ongoing. No conclusions have been formulated to date.

SMGB ACTIONS PURSUANT TO THE

SEISMIC HAZARDS MAPPING ACT

The Seismic Hazards Mapping Act (SHMA) became effective on April 1, 1991, and created a statewide seismic hazards mapping and technical advisory program to assist cities and counties in fulfilling their responsibilities for protecting the public's health and safety from the effects of strong ground shaking, liquefaction or other ground failure, landslides, and other seismic hazards caused by earthquakes. Specifically, the Act requires the delineation of seismic hazard zones by CGS, and the disclosure by sellers to prospective buyers of lands located in seismic hazard zones.

Under the SHMA the SMGB developed, in cooperation with the State Geologist, guidelines and priorities for mapping seismic hazard zones, policies and criteria for local and State agencies to implement the SHMA, and guidelines for evaluating seismic hazards and recommending mitigation measures.

As required by the SHMA, the SMGB appointed an eight-member Seismic Hazards Mapping Act Advisory Committee (SHMAAC) for the purpose of developing the guidelines for evaluating seismic hazards. On March 13, 1997 the SMGB adopted the *Guidelines for Evaluating and Mitigating Seismic Hazards in California*. These *Guidelines* have been published by CGS as Special Publication No. 117 (SP 117). The *Guidelines* reflect the collective intellectual talents from many individuals engaged in a broad spectrum of professions including the geological sciences, engineering, business, insurance, local government planning, academia, State and federal government agencies.

A Technical Advisory Committee for the establishment of Grading Standards was established by the Geohazards Committee in 2004. The members included:

Donald P. Coduto, Chair, Professor, Civil Engineering Department, Cal Poly Pomona
Elizabeth L. Mathieson, Managing Scientist, Exponent Failure Analysis Associates
Jack McMillan, Engineering Geologist, CGS
Michael J. Miller, Engineering Geologist and Geological Engineer, Stoney-Miller Consultant
Iraj Noorany, Geotechnical Consultant, Professor Emeritus, San Diego State University
Robert E. Tepel, Engineering Geologist, SMGB Member
J. David Rogers, Associate Professor, Geological & Petroleum Engineering, University of Missouri-Rolla
Mike K. Shimamoto, Engineering Geologist, City of San Jose

The purpose of this subcommittee was to prepare a special section on grading techniques and standards for incorporation into an updated and revised version of SP 117. The subcommittee held its first meeting on April 8, 2004, in San Jose. The subcommittee work was completed in early 2006. An updated version of SP 117, titled "Special Publication No. 117A", that includes the work of the subcommittee, was completed and published in early 2009.

Ten counties and 96 cities are affected by Seismic Hazard Zone Maps (Table 3). Between July 2000 and July 2006, 74 Official Seismic Hazard Zone Maps were been released. Additional Preliminary Maps covering new areas were released in 2008. These official and preliminary maps cover parts of Alameda, Los Angeles, Orange, San Bernardino, San Mateo, Santa Clara and Ventura counties.

Each map covers an area of approximately 60 square miles. Prior to the release of the Official maps, a Preliminary set of maps is released for public review (Table 4). The SMGB's Geohazards Committee, or in some cases the whole SMGB, conducts public hearings within the affected local jurisdictions to receive technical comments on the maps. These comments are reviewed by the Committee and/or SMGB, and then forwarded to the State Geologist for consideration in preparing the final set of Official Maps. A typical Seismic Hazard Zones Map, for the San Juan Capistrano Quadrangle released on December 21, 2001, is shown in Figure 3.

Table 3
Lead Agencies Affected
By the Seismic Hazards Zone Maps

Cities			Counties
Agoura Hills	Industry	Orange	Alameda
Anaheim	Inglewood	Palos Verdes Estates	Los Angeles
Arcadia	Irvine	Paramount	Orange
Artesia	Irwindale La	Pasadena	Riverside
Azusa	Canada-Flintridge	Pico Rivera	San Francisco
Baldwin Park	La Habra	Placentia	San Bernardino
Bell	La Habra Heights	Pomona	San Mateo
Bell Gardens	La Mirada	Rancho Palos Verdes	Santa Clara
Bellflower	La Palma	Redondo Beach	San Diego
Beverly Hills	La Puente	Rolling Hills	Ventura
Brea	La Verne	Rolling Hills Estates	
Buena Park	Laguna Beach	Rosemead	
Burbank	Laguna Hills	San Dimas	
Calabasas	Lakewood	San Fernando	
Carson	Lomita	San Francisco	
Cerritos	Long Beach	San Gabriel	
Claremont	Los Alamitos	San Marino	
Commerce	La Habra	Santa Ana	
Compton	La Habra Heights	Santa Clarita	
Corona	La Mirada	Santa Monica	
Costa Mesa	La Palma	Seal Beach	
Covina	La Puente	Sierra Madra	
Cudahy	La Verne	Signal Hill	
Culver City	Laguna Beach	Simi Valley	
Cypress	Laguna Hills	South El Monte	
Diamond Bar	Lakewood	South Gate	
Downey	Lomita	South Pasadena	
Duarte	Long Beach	Stanton	
El Monte	Los Alamitos	Temple City	
El Segundo	Los Angeles	Thousand Oaks	
Fountain Valley	Lynwood	Torrance	
Fullerton	Malibu	Tustin	
Garden Grove	Manhattan Beach	Vernon	
Gardena	Maywood	Villa Park	
Glendale	Mission Viejo	Walnut	
Glendora	Monrovia	West Covina	
Hawaiian Gardens	Montebello	West Hollywood	
Hermosa Beach	Monterey Park	Westlake Village	
Hidden Hills	Moorpark	Westminster	
Huntington Beach	Murrieta	Whittier	
Huntington Park	Newport Beach	Yorba Linda	
	Norwalk		

Table 4 Summary of Public Hearings on Preliminary Seismic Hazards Maps Held by SMGB			
Quadrangle	Affected Cities and Counties	Number of Preliminary Maps	SMGB Pubic Hearing Date
Oxnard (Ventura County), Malibu Beach (Los Angeles County), and San Juan Capistrano, and Dana Point Quadrangles (Orange County).	**Los Angeles, Orange and Ventura Counties.**	**3**	**October 11, 2001**
San Clemente Quadrangle (Orange County), Santa Paula Quadrangle (Ventura County), and Mountain View Quadrangle (Santa Clara County).	**Orange, Santa Clara and Ventura Counties.**	**3**	**March 14, 2002**
Fillmore, Ojai, Piru, Pitas Point, Saticoy, Oxnard Quadrangles (Ventura County), Val Verde Quadrangle (Los Angeles, and Ventura Counties), and Santiago Peak Quadrangle (Orange County).	**Los Angeles, Orange and Ventura Counties.**	**8**	**November 14, 2002**
Richmond, Oakland East, Oakland West, Briones Valley, Hunters Point, and San Leandro Quadrangles (Alameda County).	**Alameda County.**	**6**	**November 14, 2002**
Corona North and Corona South Quadrangles (City of Corona), Deadman Lake NW, Deadman Lake SE, Deadman Lake SW, Hector, Hidalgo Mountain, Lavic Lake, Lavic Lake SE, Morgan's Well, Sleeping Beauty, Sunshine Peak, and Prado Dam Quadrangle (San Bernardino County), and Point Loma Quadrangle (San Diego County).	**City of Corona, San Bernardino and San Diego Counties.**	**14**	**January 16, 2003**
High Vista, Condor Peak, Agua Dulce, and Lovejoy Buttes Quadrangles (Los Angeles County), Matilija Quadrangle (Ventura County).	**Los Angeles and Ventura Counties.**	**5**	**January 16, 2003**
Hayward, Mountain View, Newark, and Redwood Point Quadrangles (Alameda County), and the Ventura Quadrangle (Ventura County).	**Alameda and Ventura Counties.**	**4**	**March 13, 2003**
Alpine Buttes, Lancaster East, Lancaster West, Littlerock, and Ritter Ridge Quadrangles (Los Angeles County), and Santa Teresa Hills Quadrangle (Santa Clara County).	**Los Angeles and Santa Clara Counties.**	**6**	**April 4, 2003**
Acton and Pacifico Mountain Quadrangles (Los Angeles County).	**Los Angeles County.**	**2**	**May 23, 2003**
Lake Hughes, Little Buttes, Del Sur, Rosamond, Sleepy Valley, Palmdale, Juniper Hills, Valyermo Quadrangles (Los Angeles County), and Santa Paula Peak Quadrangle (Ventura County).	**Los Angeles and Ventura Counties.**	**9**	**July 10, 2003**
Milpitas and Niles Quadrangles (Alameda County), and Morgan Hill Quadrangle, (Santa Clara County).	**Alameda and Santa Clara Counties.**	**3**	**June 10, 2004**
Alpine Butte, Del Sur, Lancaster East, Lancaster West, Rosamond Quadrangles (Los Angeles County).	**Los Angeles County.**	**5**	**September 9, 2004**
Yorba Linda Quadrangle (Los Angeles, Orange, San Bernardino), Castle Rock Ridge Quadrangle (Santa Clara County), and Mindego Hill Quadrangle (Santa Clara and San Mateo Counties).	**Los Angeles, San Mateo and Santa Clara Counties.**	**3**	**March 10, 2005**
Mountain View and Palo Alto Quadrangles (Santa Clara, San Mateo, and Alameda Counties), and Mount Sizer Quadrangle (Santa Clara County).	**Alameda, San Mateo and Santa Clara Counties.**	**3**	**July 13, 2006**
Murrieta Quadrangle (Riverside County)	**Riverside County**	**1**	**June 12, 2007**
Dublin Quadrangle (Alameda County)	**Alameda County**	**1**	**May 10, 2008**
Livermore Quadrangle (Alameda County)	**Alameda County**	**1**	**May 10, 2008**

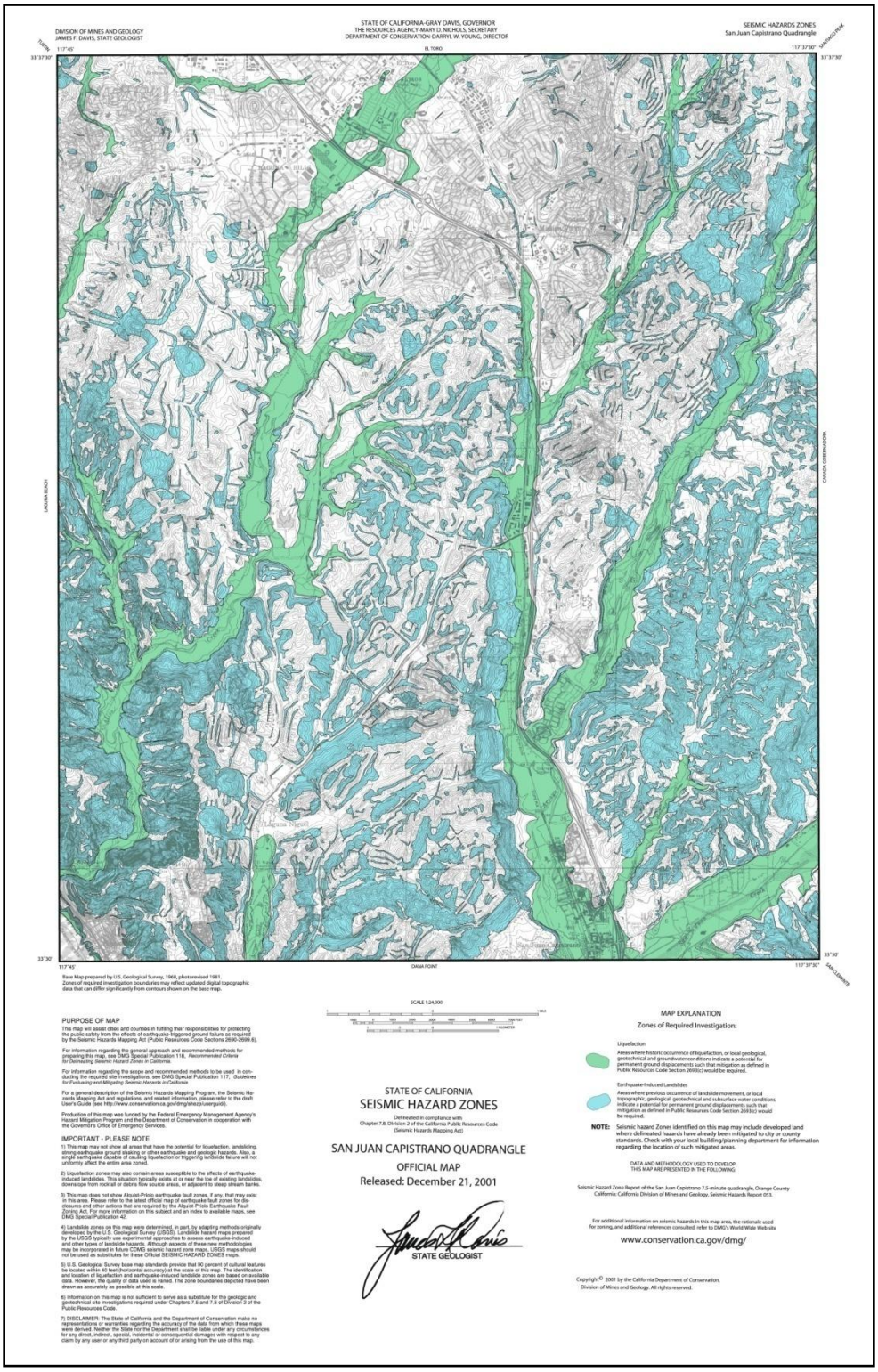

Figure 3. Seismic Hazard Zones Map for the San Juan Capistrano Quadrangle released on December 21, 2001.

SURFACE MINING & RECLAMATION ACT OF 1975

The Surface Mining and Reclamation Act of 1975 (SMARA, PRC Sections 2710-2796) provides a comprehensive surface mining and reclamation policy with the regulation of surface mining operations to assure that adverse environmental impacts are minimized and mined lands are reclaimed to a usable condition. SMARA also encourages the production, conservation, and protection of the State's mineral resources. PRC Section 2207 provides annual reporting requirements for all mines in the State, under which the SMGB also is granted authority and obligations.

SCOPE OF SMARA AUTHORITY

SMARA provides for a three-tiered approach to accomplish its administration and enforcement. The primary entity responsible for the SMARA's enforcement is the local "lead agency" - that is, the city or county in which a surface mine operates. The lead agency is responsible for assuring that all surface mine operations within its jurisdiction are in full compliance with SMARA. SMARA prescribes specific responsibilities and powers to the lead agency.

Should a lead agency become incapable of or fail to bring a surface mine operation into compliance, statute mandates that the Director of the Department of Conservation (DOC) enforce SMARA and bring about compliance. SMARA prescribes specific responsibilities and powers to the Director. The DOC is also responsible for providing technical reviews of reclamation plans and financial assurances to lead agencies to ensure that the requirements of SMARA have been addressed in the reclamation plans prior to their formal approval by the lead agency. California is the only State that regulates mine reclamation by means of local lead agencies. All other States (SMGB Information Report IR 2007-04) regulate mine reclamation through a single State office.

The third tier of enforcement lies with the SMGB. Under SMARA, the SMGB is provided authority to hear appeals of enforcement actions taken by the Director against surface mine operators, as well as appeals of certain decisions regarding reclamation plans and financial assurances taken by a lead agency. In addition, the SMGB is provided authority to take over a lead agency's SMARA authority when a lead agency's actions are in violation of the statute, or it defaults on its SMARA responsibilities and obligations. The SMGB may also exempt from the requirements of SMARA specific surface mining operations that are of limited scope and duration, and cause little land disturbance.

Promulgation of regulations that clarify and make specific SMARA's statutes also lies within the SMGB's authority. These regulations include the Performance Standards for the reclamation of lands disturbed by surface mining activities, and types of financial assurance instruments that are acceptable to ensure reclamation.

The core services and activities of the SMGB are:

- Establish mining and reclamation standards and policies and provide guidance and direction to lead agencies, mine operators, the California Geological Survey, the Office of Mine Reclamation, and other agencies and organizations (Federal, State, local);

- Represent the interests of the State in SMARA matters that are appealed to the SMGB for action;

- Develop regulations to implement the statutes statewide so as to ensure an evenhanded application of the law throughout an environmentally and economically diverse State;

- Minimize residual hazards from surface mining operations to the public health and safety;

- Encourage the production and conservation of the State's mineral resources, while providing standards for the protection and preservation of the State's recreation, watershed, wildlife, range and forage, and aesthetic features.

- Certify lead agency surface mining ordinances as being in accordance with the requirements of SMARA.

CHANGES TO SMARA SINCE 2000

SMARA became effective on January 1, 1976. Since that time it has been amended by the Legislature 22 times. Some significant changes to SMARA occurred in 1987 with AB 747 (Sher), in 1990 with AB 3551 (Sher), in AB 3903 (Sher), and in 1991 with AB 1506 (Sher), when additional performance standards for mine reclamation were required, financial assurances guaranteeing reclamation were made mandatory, surface mines without approved reclamation plans were given deadlines to comply or else close until compliance was achieved, annual inspections of mines by the lead agency were required, annual mining reports and fees from mine operators were established to support the SMARA program within the DOC, and new procedures for lead agency conditional approval of reclamation plans and financial assurances were implemented.

Statutory Changes

Gold and Silver Fees: Since 2000, changes to SMARA were made, and significant additions to the SMGB's regulations were formulated SB 649 (Kuehl, Chapter 794, Statutes of 2003), SB 1110 (Committee of Natural Resources and Water, Chapter 383, Statutes of 2005), and SB 668 (Kuehl, Chapter 869, Statutes of 2006). SB 649 (Kuehl, Chapter 794, Statutes of 2003) provide limitations on annual reporting fees to not less than $100 and not more than $4,000 for any single mining operation, as adjusted for the cost of living beginning in the 2005-06 fiscal year. The bill also limited the total revenue generated by reporting fees to $3,500,000, as adjusted for the cost of living beginning in the 2005-06 fiscal year. Also, this bill allowed for the creation of the Abandoned Mine Reclamation and Minerals Subaccount in the Mine Reclamation Account, which required the SMGB to collect a fee of $5 per ounce of gold and $0.10 per ounce of silver mined within the State for deposit into the subaccount. SB 1110 (Committee of Natural Resources and Water, Chapter 383, Statutes of 2005) allowed the gold and silver fees to be used, if so desired, to remediate features of historic abandoned mines, as defined, and lands that they impact. This bill also eliminated the reporting requirements for abandoned mine remediation projects. SB 483 (Sher, Chapter 1154, Statutes of 2002) and SB 22 (Sher, Chapter 3, Statutes of 2003) which prohibited a lead agency from approving a reclamation plan for a surface mine for metallic minerals within a mile of a Native American sacred site on specified lands within the California Desert Conservation Area unless the reclamation plan required backfilling and recontouring.

SMARA Lead Agency Conditional Approval of Reclamation Plans and Financial Assurances Requirements: Prior to 2006, approving a surface mining operation's reclamation plan, financial assurances, or any amendments, lead agencies are required to submit these documents to the

Director for review. The Director has 30 days from the date of receipt of a reclamation plan or plan amendment, and 45 days from the date of receipt of financial assurances, to prepare written comments. Current law requires lead agencies to prepare a written response to the Director's comments, describing the disposition of the major issues raised.

Recent legislation (Senate Bill 668, Kuehl, Chapter 869, Statutes of 2006), effective January 1, 2007, added PRC Section 2772.7 and amended PRC Section 2774 to require the following:

- Advance submission of lead agency response: A lead agency must submit a proposed response to the Director's written comments at least 30 days prior to approval of a reclamation plan, plan amendment, or financial assurance.

- Description of proposed adoption of comments: In its proposed response to the Director, the lead agency must describe whether it proposes to adopt the Director's comments. If it does not propose to adopt the comments, it must specify, in detail, the reason(s) for not doing so.

- Advance notice of hearing or intent to approve: A lead agency must give the Director at least 30 days notice of the time, place, and date of the hearing before the lead agency at which time the reclamation plan, plan amendment, or financial assurance is scheduled to be approved by the lead agency. If no hearing is required, then the lead agency must provide 30 days notice to the Director that it intends to approve the reclamation plan, plan amendment, or financial assurance.

- Submission of final response: The lead agency must send the Director its final response to the Director's comments within 30 days following its approval of the reclamation plan, plan amendment, or financial assurance.

- Recordation of approval: Upon approval of a reclamation plan or an amendment to a reclamation plan, a lead agency must record a "Notice of Reclamation Plan Approval" with the county recorder. The notice must read: *"Mining operations conducted on the hereinafter described real property are subject to a reclamation plan approved by the _____, a copy of which is on file with the _____."*

This bill also required DOC for purposes of complying with certain provisions regarding public contracts, to publish or otherwise make available, upon request, to the Department of General Services, or a State agency, a list identifying certain surface mining operations. OMR periodically publishes the list of mines regulated under SMARA that meet provisions set forth under California's Public Resources Code, Section 2717(b). This list is generally referred to as the AB 3098 List, in reference to the 1992 legislation, that established it. Sections 10295.5 and 20676 of the Public Contract Code preclude mining operations that are not on the AB 3098 List from selling sand, gravel, aggregates, or other mined materials, to State or local agencies. Also, this bill prohibits a contractor or a mining operator from selling any materials to a local agency unless the operation is not subject to SMARA, or unless the contractor or mining operator certifies, under penalty or perjury, that the minerals are from a mining operation identified in the list.

OFFICE OF MINE RECLAMATION

In 1991, the DOC created the Office of Mine Reclamation (OMR) to administer the provisions of SMARA for the Department. OMR is divided into three units: the Reclamation Unit, the Compliance and Reporting Unit and the Abandoned Mines Land Unit. The core operations of OMR are to:

- Provide expert technical review and comment on reclamation plans and plan amendments submitted by a lead agency prior to the lead agency's approval of the plan;
- Review and comment on financial assurance estimates for reclamation plans and plan amendments;
- Assist and advise surface mine operators regarding SMARA compliance issues;
- Assist lead agencies by providing training and advice on administering and enforcing the SMARA;
- Review and process annual reports and fees supporting the SMARA program; and
- Recommend to the Director enforcement actions against surface mine operators who do not comply with SMARA.

OMR in its Mine Reclamation Unit reviews reclamation plans and plan amendments submitted by lead agencies. This unit also assists individual mine operators and lead agencies with reclamation questions, and conducts on-site inspections of new surface mine sites and of existing sites when reclamation plan amendments are proposed. OMR's Reclamation Unit conducts training workshops throughout the State for lead agency personnel and industry regarding the content of SMARA and the SMGB's reclamation regulations. Each year, OMR conducts several of these workshops.

OMR's Reporting and Compliance Unit is responsible for the review and processing of annual reports and mining fees. When surface mine operators do not provide reports, fees, reclamation plans and financial assurances as required by SMARA (and Public Resource Code Section 2207), this unit notifies the operator and the responsible lead agency of the operator's lack of compliance. A request is made of the local jurisdiction to take corrective action. If the operator fails to comply, and the lead agency takes no further action, the Reporting and Compliance Unit recommends enforcement action to the Director.

Annual Mine Reporting

PRC Section 2207 [AB 3551 (Sher, Chapter 1097, Statutes of 1990), AB 3903 (Sher, Chapter 1101, Statutes of 1990); AB 1506 (Sher, Chapter 845, Statutes of 1991); SB 649 (Kuehl, Chapter 794, Statutes of 2003); SB 1110 (Kuehl, Chapter 383, Statutes of 2005)] provides requirements for filing annual reports and reporting fees by each mine. These Annual Reports are filed on forms furnished by the SMGB. Annual Reporting Fees and a method for collecting those annual fees from each active surface mining operation, also, are imposed by the SMGB. By July 1, 1991 surface mine operators were required to file an annual report and pay fees to the DOC for operations conducted during calendar year 1990.

Annual reports are required from all mines subject to SMARA from the time they are permitted until they are certified reclaimed, even if they have not begun operation or have ceased operation with no intent to resume. OMR mails annual report forms to each reporting mining operation during May of each year. Reports must be postmarked on or before July 1 of that year. Annual reporting forms were revised and implemented in 2007.

The number of reporting mines per year since 1990 is shown in Table 5. Because Annual Reports are filed with OMR by July 1st for the previous calendar year, the number of reporting mines is not available for calendar year 2009 at the time this report was prepared.

Table 5
Summary of Number of Reporting Mines from 1990 through 2006

Reporting Year	Number of Mines
1990	**856**
1991	**1,079**
1992	**1,154**
1993	**1,185**
1994	**1,274**
1995	**1,290**
1996	**1,332**
1997	**1,326**
1998	**1,470**
1999	**1,348**
2000	**1,444**
2001	**1,424**
2002	**1,412**
2003	**1,385**
2004	**1,359**
2005	**1,365**
2006	**1,346**
2007	**1,333**
2008	**1,224**

OMR's Reporting Unit is responsible for the review and processing of annual reports and mining fees. In July 2009 this unit processed 1,224 Annual Reports filed for calendar year 2008. In addition, mine fees in the amount of $5,651,848.69 were authorized for collection to run the DOC's SMARA program; whereas, $3,947,700.71 was paid during the 2008 fiscal year.

SMARA LEAD AGENCIES

There are 109 SMARA lead agencies (cities and counties) charged with the primary administration and enforcement of SMARA. Specific duties of lead agencies are to:

- Review and approve reclamation plans that meet the minimum requirements established by SMARA and the SMGB's reclamation performance standards (regulations) for surface mines;

- Approve financial assurances, subject to review annually, that are sufficient to pay for the costs of full reclamation of the lands disturbed by surface mining operations according to the requirements of the approved reclamation plan;

- Approve local permits for mining operations;

- Conduct an annual inspection of each surface mine to confirm that the operation is in compliance with the requirements of SMARA, and to remedy the situation if the operation is not in compliance;

- Issue Administrative Penalties to operators who do not come into compliance;

- Close operations that do not attain compliance;

- Maintain a surface mining ordinance that is in accordance with SMARA;

- Incorporate Mineral Resource Management Policies into their General Plans if there are mineral "classified" or mineral "designated" lands within the lead agency's jurisdiction.

Many lead agencies are diligent in their reviews and approvals of reclamation plans in accordance with SMARA and the SMGB's regulations; others, for a variety of reasons, are less able to perform adequate reviews of reclamation plans and rely extensively on OMR's technical review comments. Lead agencies must review financial assurances annually and require adjustments to the financial assurance amounts to cover any changes to the costs of reclamation. This financial assurance review should be accomplished during the mandatory annual inspection process. Following the field inspection, the lead agency should require a recalculation of the required financial assurance amount to adjust for changes in the amount of newly disturbed land and reclaimed land, and economic inflation.

Since 2002, the SMGB has exercised its assumption of lead agency authority for two counties, and by default, 10 cities, and 12 marine dredging operations. In September 2006, the SMGB performed a review of overall SMARA lead agency performance using the DOC SMARA database (SMGB Information Report 2007-01). This evaluation assessed the lead agency's performance of periodic mine inspections, adjustment of annual financial assurances and enforcement of the preparation of Interim Management Plans (IMP) should a surface mine site be characterized as idle for a period exceeding one year. Based on this review, the overall performance of SMARA lead agencies throughout California varies significantly. For the most part, overall performance is poor, reflecting a number of factors, including primarily financial constraints, and limited or absent technical expertise.

Performance rates for the conduct of inspections at least once each calendar year by SMARA lead agencies is moderate, averaging 66-75 percent, although the quality of such inspections is inferred to be generally poor. The annual review and adjustment of financial assurances by SMARA lead agencies is abysmal for the State as a whole, with 91 percent of the counties having financial assurance adjustment rates at or below 50 percent. In addition, financial assurances dollar amounts appeared to be unrealistically low as of 2002. In regards to enforcement as it relates to the SMARA lead agency requiring IMPs, or directing the operator to commence reclamation promptly; this aspect of enforcement is almost unknown to lead

agencies within California. If IMPs are deemed reflective of SMARA enforcement efforts by lead agencies, then such efforts are almost non-existent. While the SMGB has not yet exercised its assumption authority following this statewide evaluation, lead agencies are taking notice and looking more closely at their SMARA programs.

Mineral Resource Management Policies

Lead agencies are required to incorporate Mineral Resource Management Policies (MRMP) into their General Plans upon revision of their plans. Thirty-six lead agencies have mineral classified or mineral designated lands within their jurisdictions. Although MRMP's are required to be sent to the SMGB for review prior to their incorporation into local General Plans, most lead agencies seem not to have done so. Also, because MRMP information may be placed in more than one section or element in a General Plan, it can be difficult to find the MRMP if it is not clearly identified. A summary of MRMPs recognized by the SMGB from July 2000 to June 2009 is presented below in Table 6.

STATE MINING & GEOLOGY BOARD AUTHORITY UNDER SMARA

Under SMARA, the SMGB has authority to act on the following items:

- Review and certify lead agency surface mining ordinances;
- Review certain orders of the Director before they become effective;
- Assume local lead agency authority for administering and enforcing SMARA under specified circumstances; and
- Adjudicate appeals from individuals and mine operators for specific lead agency actions.
- Adjudicate appeals of Administrative Penalties issued by the Director;
- Exempt from the requirements of SMARA specific surface mining operations; and
- Make regulations implementing the statutes.

SMARA requires each lead agency (City, County, or City and County) to have a surface mining and reclamation ordinance that is in accordance with the statute. To ensure ordinances are in compliance, the SMGB has authority to review and certify these local ordinances that meet SMARA requirements. As of July 1, 2007, there are 109 SMARA lead agencies in the State.

SMARA requires that lead agencies periodically revise these ordinances to keep them in accordance with legislative changes. The SMGB is required to re-certify these ordinances before they become effective. Between July 1999 and July 2000, the SMGB reviewed and re-certified the updated SMARA ordinances for 13 cities and eight counties as summarized in Table 7.

Table 6 Summary of SMGB Recognized MRMP July 2000 - June 2009				
Lead Agency	MRMP Submittal Date	Recognition Date	SMGB Resolution Number	MRMP Document
City				
Claremont	August 2, 2006	December 14, 2006	2006-10	General Plan, Mineral Resources
Goleta	May 31, 2006	September 14, 2006	2006-07	
Irwindale	May 2008	December 11, 2008	2008-08	2020 General Plan, Section 5, Resource Management Element
Santa Clarita	July 19, 2006	Not recognized		
Truckee	May 16,2006	September 14, 2006	2006-08	
County				
El Dorado	January 24, 1995; April 9, 2003	Not recognized		County General Plan, Volume I – Goals, Objectives and Policies, December 1993; 1996 general Plan Alternatives – Conservation and Open Space Element, 1996.
Marin	August 11, 2004	October 14, 2004		2.6 Natural Systems Element
Merced	November 8, 2001	February 14, 2002		
Nevada	February 26, 2003	May 23, 2003		Nevada County General Plan Final Draft, September 1995, Chapter 17: Mineral Management
Sacramento	May 2008	September 11, 2008	2008-05	General Plan Conservation Element, Section II, Mineral Resources, and Section IV, Soil Resources

California Mineral Resource Management Program

Based on a review of the State's mineral resource management program (SMGB Information Report 2007-03), it was concluded that the Mining Ordinance review and certification program is working well, with an effective compliance rate of 100 percent. The MRMP review and recognition program is not working well and the compliance rate, while not well documented, may be as low as 4 percent to 19 percent, which is unacceptable. The CEQA review and comment program within SMGB is currently not effectively

functioning and documents are not regularly reviewed. If the latter two programs are to regain their effectiveness, significant changes and additional resources are required. Recommendations for the consideration of the Minerals and Geologic Resources Committee of the SMGB have been provided.

Table 7
SMGB Certified Surface Mining and Reclamation Ordinances
July 2000 – July 2009

LEAD AGENCY	CITY OR COUNTY	LATEST CERT. DATE	SMGB CERTIFICATION DATE	SMGB RESOLUTION NUMBER	ORDINANCE NUMBER
Hayward	City	2004	11/15/04	Resolution 2004-09	Ordinance No. 04-12
Los Angeles	City	2000	7/13/00	Resolution 2000-06	Ordinance No. 173106
Mammoth Lakes	City	2001	5/10/01	Resolution 2001-05	Ordinance No. 01-02
Oakland	City	2003	6/19/03	Resolution 2003-02	Ordinance No. 12496
Oxnard	City	2001	10/11/01	Resolution 2001-06	Ordinance No. 2579
Pacifica	City	2006	5/12/06	Resolution 2006-03	Ordinance Nos. 670-C.S. and 711-C.S.
Poway	City	2004	11/15/04	Resolution 2004-11	Ordinance No. 609
Rancho Cordova	City	2004	7/23/04	Resolution 2004-06	Ordinance No. 22-2004
San Bernardino	City	2000	12/14/00	Resolution 2000-14	Ordinance No. MC-1084
San Diego	City	2000	7/13/00	Resolution 2000-05	Ordinance No. 18802
San Jacinto	City	2004	12/9/04	Resolution 2004-12	Ordinance No. 04-08
Tracy	City	2000	11/9/00	Resolution 2000-12	Articles 37 and 38 of the City Code
Truckee	City	2001	1/11/01	Resolution 2001-01	Ordinance No. 2000-04
Colusa	County	2003	9/11/03	Resolution 2003-04	Ordinance No. 659
Contra Costa	County	2000	7/13/00	Resolution 2000-08	Ordinance No. 2000-18
Glenn	County	2005	5/12/05	Resolution 2005-05	Ordinance Nos. 1083 and 1171
Lake	County	2000	7/13/00	Resolution 2000-07	Ordinance No. 2533
Madera	County	2006	12/14/06	Resolution 2006-10	Ordinance No. 525G
Modoc	County	2000	1/14/00	Resolution 99-48	Ordinance No. 236-85
Santa Clara	County	2000	12/14/00	Resolution 2000-13	Ordinance No. 1200.299
Yolo	County	2001	12/13/01	Resolution 2001-08	Ordinance No. 1276

Compliance Actions

When the Director issues an Order to a surface mine operator to bring its operations into compliance with the State mining law, SMARA provides that the Order does not become effective until it has been heard by the SMGB in public session. This constitutes an automatic appeal to the SMGB. No Orders were issued by the Director to a surface mine operator since July 2000.

There are four circumstances when the SMGB is empowered to assume local lead agency authority:

1. When the lead agency's mining ordinance has been determined to be deficient by the SMGB, the SMGB assumes authority to review and approve new reclamation plans and plan amendments until a revised ordinance is certified by the SMGB. There were no lead agencies in this category as of June 30, 2009.

2. When a local jurisdiction has no mining ordinance, yet has a surface mining, or proposed surface mining, operation within its jurisdiction. There were seven lead agencies in this category as of June 30, 2009.

3. When the SMGB accepts an appeal petition from an aggrieved person alleging a lead agency's inaction or its denial of a reclamation plan or financial assurance, the SMGB may uphold or override that denial; The SMGB had one appeal, against the City of Chula Vista, regarding reclamation plan inaction before it as of June 30, 2009.

4. When the SMGB determines that a lead agency has failed in one or more of its responsibilities under SMARA. There were two lead agencies, El Dorado County and Yuba County, in this category as of June 30, 2009.

In March 2000 the SMGB assumed from El Dorado County its SMARA authority to annually inspect surface mines. The SMGB determined that annual mine inspections performed by the County were not adequate to determine the true operating and compliance status of the surface mines within the County's jurisdiction. Under SMARA Section 2774.4 the SMGB will have this inspection authority for a minimum of three years. In 2001, the SMGB assumed all of the County's SMARA responsibilities. In 2002, the SMGB also assumed all of the County of Yuba's SMARA responsibilities. During the reporting period the SMGB also reviewed the SMARA programs for the Counties of Butte, Sacramento, Santa Clara, San Bernardino, and Siskiyou, and the City of Irwindale.

Administrative Penalties Appeals

Between July 2006 and July 2007 the DOC issued 13 Administrative Penalties to surface mine operators for failures to come into compliance with SMARA. During this same period, the SMGB heard appeals from one of the affected operators.

One operator appealed the penalties to the SMGB. The SMGB has the authority to rescind, modify, or uphold, by its own order, the penalty on appeal. In this case, the SMGB determined to uphold the penalties.

SMARA Exemptions

The SMGB may exempt from the requirements of SMARA surface mining operations that are of short duration and cause limited surface disturbance. Between July 1999 and July 2009, the SMGB heard 13 such exemption requests (Table 8).

SMGB AS A SMARA LEAD AGENCY

As of July 2009, the SMGB serves as lead agency under SMARA for 44 individual mining operations located in California. Of these 44 surface mining operations, 25 are located within two counties (El Dorado County and Yuba County), 7 are located within cities that do not have surface mining ordinances, and 12 are dredging operations located within the San Francisco Bay and bay delta areas.

Table 8 Summary of SMARA Exemption Requests From July 2000 to June 2009		
Date	City or County	Exemption Request
11/19/00	Fresno County	SMARA Exemption Request, Strahm Engineering, Gegunde Stock Pond, Fresno County
8/16/01	Yuba County	SMARA Exemption Request, Jon Messick, Yuba County
8/16/01	Lassen County	SMARA Exemption Request, Fitch Sand & Gravel, Lassen County
12/13/01	City of Red Bluff	SMARA Exemption Request, Ladd & Associates, Adobe Road-Interchange, City of Red Bluff
7/11/02	Yuba County	SMARA Exemption Request, Baldwin Contracting Company
11/14/02	Yuba County	SMARA Exemption Request Denial, Alice Sohrakoff, Yuba County
4/10/03	Kern County	SMARA Exemption Request, Cactus Mine, Kern County
5/23/03	Yuba County	SMARA Exemption Request, Baldwin Contracting, Yuba County
3/12/04	Kern County	SMARA Exemption Request, B&B Materials, Inc., Kern County
6/10/04	Santa Barbara County	SMARA Exemption Request, Jeff & Shawn Montgomery, Montgomery Family Trust, Lambert Road, Carpinteria, County of Santa Barbara
7/23/04	Kern County	SMARA Exemption Request, Smeed Family Trust, Tehachapi, Kern County
12/11/08	San Diego	Consideration for Approval of a Request for Exemption from the Requirements of the SMARA Pursuant to Section 2714(f) for the Hester Granite
03/13/08	Mendocino	SMARA Exemption Request, Willets Bypass, Mendocino County
04/09/09	Yuba County	SMARA Exemption Request, Three Rivers Levee Improvement Authority, Yuba County.

The SMGB may assume a local jurisdiction's authority to administer SMARA under certain circumstances. Specifically, PRC Section 2774.4 states:

> *"(a) If the board finds that a lead agency either has (1) approved reclamation plans or financial assurances which are not consistent with this chapter, (2) failed to inspect or cause the inspection of surface mining operations as required by this chapter, (3) failed to seek forfeiture of financial assurances and to carry out reclamation of surface mining operations as required by this chapter, (4) failed to take appropriate enforcement actions as required by this chapter, (5) intentionally misrepresented the results of inspections required under this chapter, or (6) failed to submit information to the department as required by this chapter, the board shall exercise any of the powers of that lead agency under this chapter, except for permitting authority."*

On June 14, 2001 the SMGB assumed SMARA lead agency authority from El Dorado County, and on February 14, 2002 the SMGB assumed SMARA lead agency authority from Yuba County.

Figure 4. Former aggregate extraction pond within the Yuba Goldfields near the community of Hallwood in Yuba County showing reclaimed shorelines. (Photo credit: Stephen M. Testa)

PRC Section 2774.5 requires the SMGB to assume full authority for reviewing and approving reclamation plans in any jurisdiction in which the lead agency does not have a certified surface mining ordinance. As of November 2009, the SMGB serves as SMARA lead agency for 6 cities that have surface mining operations within their jurisdiction, but do not have surface mining ordinances.

Finally, the SMGB acts as the SMARA lead agency for all surface mining operations under the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC). The San Francisco BCDC jurisdiction includes open water, marshes, mud flats and shorelines immediately surrounding San Francisco Bay and its surrounding Bays and tributary water bodies. As of July 2009, there were 11 active marine dredging operations, and one inactive operation that has an approved reclamation plan in place, for which the SMGB oversees SMARA compliance. Three marine dredging operations ceased activities and were considered closed in late 2009.

Figure 5a. 2007 view of former aggregate quarry within the City of Richmond showing material stockpiles (center left and upper right) and unstable quarry cut slopes (upper left and upper center). (Photo credit: Will Arcand)

Figure 5b. 2009 View of former aggregate quarry within the City of Richmond showing graded and revegetated quarry floor (lower center), engineered fill slope buttress (upper center), and recently installed line of rock bolts (upper left). (Photo credit: Will Arcand)

Figure 6. Satellite image of San Francisco Bay and surrounding areas showing locations of San Francisco BCDC marine dredging operations (in red) under the jurisdiction of the SMGB. (Photo credit: modified after Google maps)

The status of all surface mining operations currently under the jurisdiction of the SMGB as SMARA lead agency is summarized in Table 9.

Table 9
SMGB SMARA LEAD AGENCY SURFACE MINES

CA ID No.	Mine Name	Status	Primary Commodity	Local Lead Agency
91-07-0006	Richmond (Chevron) Quarry	Mining Completed - Reclamation In Progress	Franciscan Rock, Recyclable Concrete and Asphaltic Material	City of Richmond
91-07-0007	Pt. Richmond (Canal) Quarry	Reclamation Completed – Post Reclamation Monitoring	Franciscan Rock	City of Richmond
91-09-0001	Bear Creek Quarry	Active	Serpentinite Rock	County of El Dorado
91-09-0002	Weber Creek Quarry	Idle	Serpentinite Rock	County of El Dorado
91-09-0003	Diamond Quarry	Active	Limestone	County of El Dorado
91-09-0004	Chili Bar Slate Mine	Active	Slate	County of El Dorado
91-09-0005	Cool Cave Quarry	Active	Limestone	County of El Dorado
91-09-0006	Timm Mine	Idle	Specimen Gold	County of El Dorado
91-09-0009	Somerset Sand Pit	Active	Granitic Sand	County of El Dorado
91-09-0010	Lawyer Pit	Active	Granitic Sand	County of El Dorado
91-09-0012	Snows Road Quarry	Idle	Alluvial Sand and Gravel	County of El Dorado
91-09-0015	Marin Quarry	Active	Granodiorite	County of El Dorado
91-19-0004	Atkinson Pit I	Mining Completed - Reclamation In Progress	Clay	City of Compton
91-27-0006	CEMEX-Lapis	Active	Beach Sand	City of Marina
91-31-0013	Big Gun Quarry	Idle	Granite	City of Rocklin
91-33-0003	Super Creek Quarry (Painted Hills)	Active	Decorative Stone	City of Desert Hot Springs
91-33-0031	Garnet Pit	Active	Alluvial Sand	City of Palm Springs
91-38-0001	Alcatraz, Presidio, Point Knox	Active	Marine Sand	San Francisco BCDC
91-38-0002	Point Knox South	Active	Marine Sand	San Francisco BCDC
91-38-0003	Point Knox Shoal	Active	Marine Sand	San Francisco BCDC
91-38-0004	Alcatraz South Shoal	Active	Marine Sand	San Francisco BCDC
91-38-0005	Hanson Suisun Bay	Active	Marine Sand	San Francisco BCDC
91-38-0006	Hanson Suisun Bay Middleground Shoal	Active	Marine Sand	San Francisco BCDC
91-38-0007	Jerico Suisun Bay Middle Ground Shoal	Active	Marine Sand	San Francisco BCDC
91-38-0011	Morris Tug & Barge Marine Oyster Shell Mining	Active	Marine Oyster Shells	San Francisco BCDC
91-38-0012	San Francisco Marina Dredging Operation	Mining Not Commenced	Marine Sand	San Francisco BCDC
91-58-0001	Western Aggregates	Active	Alluvial Sand and Gravel	County of Yuba
91-58-0002	Knife River Hallwood	Active	Alluvial Sand and Gravel	County of Yuba
91-58-0003	Cal Sierra Development	Active	Gold	County of Yuba
91-58-0004	Sperbeck Quarry	Active	Metabasalt	County of Yuba
91-58-0006	Teichert Hallwood	Active - Reclamation In Progress	Alluvial Sand and Gravel	County of Yuba
91-58-0007	Wheatland Clay	Idle - Reclamation Complete	Clay	County of Yuba
91-58-0011	Dantoni Pit	Active	Alluvial Sand and Gravel	County of Yuba
91-58-0013	Parks Bar Quarry	Active	Metabasalt	County of Yuba
91-58-0015	Blue Point Clark Rock Quarry	Reclamation Complete - Post Reclamation Monitoring	Metabasalt	County of Yuba

Table 9 (Continued) SMGB SMARA LEAD AGENCY SURFACE MINES				
CA ID No.	**Mine Name**	**Status**	**Primary Commodity**	**Local Lead Agency**
91-58-0019	Teichert Marysville (Yuba-Hoffman)	Active	Alluvial Sand and Gravel	County of Yuba
91-58-0021	Blue Point Mine	Reclamation Complete - Post Reclamation Monitoring	Alluvial Sand and Gravel	County of Yuba
91-58-0022	Silica Resources	Active	Alluvial Sand and Gravel	County of Yuba
91-58-0023	Silica Resources #2 (Formerly Garcia Sand & Gravel)	Active	Alluvial Sand and Gravel	County of Yuba
91-58-0025	Simpson Lane	Active	Alluvial Sand	County of Yuba
91-58-0026	Three Rivers Levee Improvement Authority, Feather River Levee Repair Project Segment 2	Active - Reclamation In Progress	Levee Fill Material	County of Yuba

SUMMARY OF SMARA REGULATIONS AND GUIDELINES ADOPTED BY THE SMGB

Regulations

The bulk of the SMGB's regulations pertaining to reclamation performance standards were adopted on January 15, 1992 following earlier changes to SMARA that mandated the SMGB to provide for these regulations. These regulations are contained in the California Code of Regulations (CCR) Section 3500 et seq. and Section 3700 et seq. Since then, most regulatory action has been to clarify portions of SMARA and PRC Section 2207.

PRC Section 2755 provides authority to the SMGB to adopt regulations that establish State policy for the reclamation of mined lands. PRC Section 2759 states that State policy shall be continuously reviewed and may be revised, based on consultation and evaluation of recommendations of the Director of DOC, advisory committees, concerned federal, State and local agencies, educational institutions, civic and public interest organizations, and private organizations and individuals. Between July 2000 and June 2009, the SMGB adopted the regulations discussed below.

Backfilling of Open-Pit Metallic Mines

In 2002, the Resources Agency and the State Legislature informed the SMGB of their concerns with the detrimental impacts caused by large metallic mining projects on California's environment and landscape, particularly when large, open-pit excavations remain as open craters, and piles of overburden and waste rock materials remain on the surface, following the termination of mining operations. The SMGB was requested to consider adopting into state policy, on an urgency basis, reclamation regulations that would provide for the backfilling of open-pit excavations caused by large metallic surface-mining operations.

During 2002 and 2003, the SMGB evaluated the effectiveness of the backfilling standard in achieving reclamation of mines throughout the state, and determined that aggregate and other non-metallic mineral mines were often not backfilled during reclamation because there was insufficient mine waste available for backfill material. Generally, however, aggregate mines are

located in urban areas near to where it is utilized by the construction industry. Thus, reclamation was occurring at these sites because land values made it economical to backfill the property for development. The SMGB found that open pits associated with metallic mines were not being reclaimed (Figure 7). Generally, these pits were left in the final mining configuration with few efforts to backfill or reclaim them to a beneficial end use. So, in 2003, California became the first state to adopt a backfilling standard requiring that open pit metallic mines be backfilled (SMGB Information Report 2007-02).

Figure 7. The two reclaimed pits at the Castle Mountain Mine exceed 500 feet in depth. The backfilled pit is situated in the upper right portion of the image, where a portion of the pit rim is still evident. (Photo credit: James Pompy)

Historical Perspective: Historically, thirty years ago, Congress required that coal mines be backfilled as a routine element of reclamation when it passed the SMCRA. The concept has not been generally applied to non-coal surface mines, however, until 2003 when the SMGB evaluated reclamation of open pit metallic mines in the state.

Large open pit metallic mines were not common in California until the discovery of large disseminated gold deposits. The Carlin Mine was discovered in 1961 in northern Nevada. Carlin became the first large gold mine on what is now known as the Carlin Trend. Carlin-type deposits are characterized by extremely fine-grained gold that cannot be seen by the human eye nor concentrated by panning. By 1970 another other mine, the Cortez operation, had been found and developed in northern Nevada. Then came the discovery of the Pinson, Preble, Sterling, and Dee mines and development of the Getchell Trend, second only to the Carlin Trend in Nevada gold production. These successes and higher gold prices fueled a Nevada exploration boom during the 1980s. The gold rush quickly spread to California.

Cyanide heap leaching technology made it possible for very large low grade deposits to be mined economically. Low grade deposits that could not be mined economically by underground or open pit methods, especially when using more costly vat leaching processes, were suddenly sought out. Numerous large open pit mines began to spring up along the gold bearing trends in Nevada and California.

Most regulatory frameworks for open pit mining were adopted prior to the discovery of the large disseminated gold deposits and proliferation of large open pit gold heap leach operations. The surge in large open pit metallic mines was not anticipated when SMARA was adopted in 1975. As more and larger new open pit mining operations sprang up, there was renewed interest in mine reclamation.

The Rationale for Backfilling Regulations for Metallic Surface Mines: The purpose of SMARA is to "*create and maintain an effective and comprehensive surface mining and reclamation policy so as to assure that adverse environmental impacts are prevented or minimized and that mined lands are reclaimed to a usable condition which is readily adaptable for alternative land uses"* and that "*residual hazards to the public health and safety are eliminated*"(PRC Sections 2712(a) and (c); see also PRC Section 2711(a)). In addition, SMARA states, "*the reclamation of mined lands…will permit the continued mining of minerals and provide for the protection and subsequent beneficial use of the mined and reclaimed land*." (PRC Section 2711(b)). SMARA defines reclamation as "*the combined process of land treatment that minimizes water degradation, air pollution, damage to aquatic or wildlife habitat, flooding, erosion, and other adverse effects from surface mining operations, including adverse surface effects incidental to underground mines, so that mined lands are reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety*." (PRC Section 2733). The reclamation process "*may extend to affected lands surrounding mined lands, and may require backfilling, grading, resoiling, revegetation, soil compaction, stabilization, or other measures*"(id.). In furtherance of these requirements, a reclamation plan must provide a "*description of the proposed use or potential uses of the mined lands after reclamation*" (PRC Section 2772(c)(7)).

Reclamation is applicable to a specific piece of property or properties, and is based upon the character of the surrounding area and such characteristics of the property as type of overburden, soil stability, topography, geology, climate, stream characteristics, and principal mineral commodities. Reclamation also establishes site-specific criteria for evaluating compliance with the approved reclamation plan, including topography, revegetation and sediment, and erosion control. Board regulations adopting statewide reclamation standards included backfilling, regarding, slope stability and recontouring, among other reclamation standards (PRC Article 5 Section 2773). The Board has the authority to adopt regulations concerning backfilling and all surface mining operations shall include, but shall not be limited to, measures to be employed by lead agencies in specifying grading and backfilling, resoiling, revegetation, soil compaction, and other reclamation requirements (PRC Section 2756).

SMARA requires all surface mining operations to have an approved reclamation plan and financial assurance, and no person can conduct surface mining operations without obtaining a permit to mine, an approved reclamation plan and financial assurance, from its SMARA lead agency (PRC Section 2770(a)). Prior to approving a surface mining operations reclamation plan, financial assurances, including existing financial assurances reviewed by the lead agency, are required to be submitted by the lead agency to the Director of the Department of Conservation for review (PRC Section (2774(c)).

As previously stated, SMARA requires that upon the termination of surface mining operations, lands affected by the mining operations shall be, *"reclaimed to a usable condition which is readily adaptable for alternate land uses and create no danger to public health or safety."* Often, open-pit metallic surface mines with reclamation plans approved by their lead agencies did not require the backfilling of the excavation or the recontouring of affected mined lands, thereby leaving large, unfilled pits and mounds of overburden or mine-waste rock material on the surrounding landscape. Often, too, the end use to which the site was to be readily adaptable was given as an undefined "open space".

Where open pit excavations remain on the landscape, it often is difficult to envision how the remaining open pit is readily adaptable for a beneficial alternate use, or how the "open space" itself is usable. Open pit metallic mineral mines often create very large excavations with at least equally large overburden and rock waste piles. Material "swelling" may create overburden and rock waste piles having greater volumes than the pit from which the material was excavated. Industry statements provide that swelling by as much as 40 percent occurs. In addition, metallic mineral mines that employ the cyanide heap leach method for mineral segregation and collection frequently generate very large leach piles. These features remain on the landscape following the conclusion of mining operations, and may pose a contamination problem when residual cyanide (or any other processing solution) not removed by rinsing is exposed to precipitation percolating through the pile and flushing the processing solution into surface waters.

As stated in the Final Statement of Reasons for 14 CCR Section 3704.1 (page 1-2) "*In summary, leaving large, open pits in the surface surrounded by millions of cubic years of waste rock does not leave the site in a useful condition, and clearly leaves the site in a less useful and beneficial condition than before it was mined…[I]t is the intent of SMARA that completed mine sites present no additional dangers to the public health and safety… and that the mined lands are returned to an alternate, useful condition. To date, no large, open pit metallic mines in California have been returned to the conditions contemplated by SMARA, and these sites remain demonstrably dangerous to both human and animal health and safety*."

Emergency Regulation Adoption: In 2002, the Resources Agency and the State Legislature informed the SMGB of their concerns with the detrimental impacts caused by large metallic mining projects on California's environment and landscape, particularly when large, open-pit excavations remain as open craters, and piles of overburden and waste rock materials remain on the surface, following the termination of mining operations. The SMGB was requested to consider adopting into State policy, on an urgency basis, reclamation regulations that would provide for the backfilling of open-pit excavations caused by large metallic surface-mining operations.

At its November 14, 2002 regular business meeting, and again at its December 12, 2002 meeting, the SMGB received comments on this issue from the California State Legislature, the Resources Agency, the Quechan Indian Tribe, The Mineral Policy Center (Washington, D. C.), the Center for Biological Diversity, the Sierra Club of California, Defenders of Wildlife, California Wilderness Coalition, the California Mining Association, Glamis Gold, Ltd., and other interested parties and surface mine operators. Following receipt of these comments, the Board made findings that an emergency condition existed and adopted on December 12, 2002, an emergency regulation adding Section 3704.1 to Title 14, California Code of Regulations (CCR), addressing the backfilling of open pit excavations caused by large metallic surface mining operations. This emergency regulation remained in effect until April 18, 2003.

The SMGB subsequently instructed the Executive Officer (at this time Dr. John Parrish, current State Geologist of California) to coordinate the development of permanent regulatory language with the guidance of an *ad hoc* committee consisting of two SMGB members appointed by the Chairman, and present proposed text for consideration for approval by the Board at its January 16, 2003 regular business meeting. During this process:

- The public was given ample opportunity to comment on the proposed regulation over the course of several months;

- Over 2,500 comments were received; and

- Only four comments received were in opposition to the proposed regulation.

The Notice of Proposed Rulemaking for this regulation was published in the California Regulatory Notice Register on February 14, 2003. This action commenced the 45-day public comment period, which closed April 1, 2003. No comments were received regarding the text in the proposed regulation. Following comments and suggestions from SMGB members, the SMGB made minor modifications to the text and adopted the regulation on April 13, 2003.

In summary, the goal of the SMGB regulations was to require mining companies to address the problems identified above and to take responsibility for cleaning up their mine sites after the completion of surface mining operations, and return them to a condition that allows alternative uses and avoids environmental harms, thereby meeting the purpose and intent of SMARA. SMGB regulations, which took effect in 1993, establish performance standards for reclamation pursuant to SMARA, including standards for backfilling (14 CCR Section 3704). The standards provide that, where backfilling is required for resource conservation purposes, fill material must be backfilled "*to the standards required for the resource conservation use involved*" (14 CCR Section 3704(b)). *New section 3704.1 of the regulations merely 'clarifies and makes specific the conditions under which the backfilling of open pit excavations for metallic surface mines must be undertaken' to meet SMARA reclamation requirements*." (see Final Statement of Reasons for 14 CCR Section 3704.1, page 1). CCR Section 3704.1 also contains a grandfather provision, which exempts from this section any surface mining operation "*for which the lead agency has issued final approval of a reclamation plan and a financial assurance prior to December 18, 2002*." (14 CCR Section 3701.4(i).

On December 14, 2006, the SMGB considered a petition to amend CCR Section 3704.1(i) of Title 14, Article 9, pertaining to requirements to backfill an open pit for which the lead agency has issued final approval of a surface mining permit and/or reclamation plan, and a financial assurance, prior to December 18, 2002. The mine operator for the Golden Queen Mining Company (Golden Queen), Soledad Mountain Project, located in Kern County, petitioned the SMGB to consider an amendment to the SMGB's backfilling regulations Title 14, Article 9, CCR 3704.1, pertaining to Performance Standards for Backfilling Excavations and Recontouring Lands Disturbed by Open Pit Surface Mining Operations for Metallic Minerals, and as it applies to the Golden Queen Mining Company's Soledad Mountain Project. Specifically, the petitioner requested that they be exempted from the requirement of backfilling.

The SMGB denied the petition, and at its January 11, 2007, regular business meeting, the SMGB provided its Statement of Reasons summarized below:

> <u>Finding No. 1</u>: The SMGB strongly reiterated that the SMGB's backfilling regulations were of significant environmental importance that corrected the common past mining practice of leaving large steep-walled open-pits, and expansive waste and leach piles, which remained as public eyesores and safety hazards. Without backfilling a permanent scar is left on the community and the land for decades or longer. Granting an exemption to the backfilling regulation, or changing the regulation so that one or more additional mines would be exempt from the backfilling requirement, would extend the negative legacy of essentially un-reclaimed open-pit metallic mines. This would not be consistent with legislative intent, environmental consciousness, or sound public policy.

Finding No. 2: The SMGB expressed concern that it has been only two-to three-years since the SMGB's backfilling regulation became effective, and already an exemption was being requested to change the effective starting date. The petitioner had abundant opportunity to comply with the SMARA or present its arguments at the time the backfilling regulation was initially under consideration. Significant time and effort was invested by the SMGB in initial consideration of the backfill regulation, including a substantial discussion about the effective application date of such regulation. The justification provided by Golden Queen, in its present petition, is both insufficient and unpersuasive to justify reopening this area of regulation.

Finding No. 3: The SMGB stated that there was no ambiguity in the language of the backfilling regulation itself, and that qualifying conditions for exemption through "grandfathering" were both clear and specific at the time the regulation was passed. The lead agency must have issued final approval of a reclamation plan and financial assurances prior to December 18, 2002. Those conditions had not been met by Golden Queen at the time the regulation was adopted. Golden Queen did not provide testimony or a request to be included as a grandfathered mine during the SMGB's original regulatory deliberations.

Finding No. 4: The SMGB expressed concern that granting the petition would set a dangerous precedent and would appear to be a significant reversal and weakening of the backfilling regulation. The SMGB has no intent to change its position on the necessity for backfilling and does not wish to send that message to the mining industry or the citizens of the State. Granting the petition could appear to be an open invitation for additional petitions and exemptions based upon special circumstances. Ample time was provided to hear such requests for exemption at the time the regulatory action was taken.

Finding No. 5: The SMGB concluded that Golden Queen had "unclean hands" in its present request for "equity and fairness" in the application of the backfilling regulation. Golden Queen appears to have conducted illegal mining operations prior to promulgation of the SMGB's backfilling regulations, and this activity did not put Golden Queen in the "best of light" in making equitable arguments in support of its petition.

Finding No. 6: The SMGB concluded that the proposed surface mining operation was not simply mountain top removal, as was represented by the proponent, but was in fact an open-pit mine based on review of cross-sections, and was therefore subject to current backfilling regulation.

Finding No. 7: Concern was expressed that under the petition process, accepting the petition would make the SMGB an advocate of the petitioned regulatory request, in lieu of an impartial decision-making body. No mechanism appeared to be available to allow the SMGB to address this matter as a non-advocate in an impartial manner.

Glamis Gold Ltd., a publicly-held Canadian corporation engaged in the mining of precious metals, submitted a claim to arbitration under the United Nations Commission on International Trade Law (UNCITRAL) Arbitration Rules on behalf of its enterprises Glamis Gold, Inc. and Glamis Imperial Corporation, for alleged injuries relating to a proposed gold mine in Imperial County, California (Glamis Gold Ltd. v. United States of America). Glamis claimed that certain

federal government actions and California measures with respect to the SMGB's backfilling regulations for metallic open-pit surface mining operations resulted in the expropriation of its investments in violation of Article 1110, and denied its investments the minimum standard of treatment under international law in violation of Article 1105. The California measures included regulations requiring backfilling and grading for mining operations in the vicinity of Native American sacred sites. Glamis claimed damages of not less than $50 million. On June 8, 2009, the Tribunal released the Award, dismissing Glamis's claim in its entirety and ordering Glamis to pay two-thirds of the arbitration costs in the case.

Administrative Procedures for Vested Rights Determination When the SMGB Serves as a SMARA Lead Agency

SMARA requires all individuals and operators to acquire a permit from the local lead agency, and to obtain a SMARA lead agency approved reclamation plan and financial assurances for reclamation, prior to the commencement of surface mining operations (PRC Section 2770(a)). However, any person who has obtained a vested right to conduct surface mining operations prior to January 1, 1976, shall not be required to secure a permit pursuant to this chapter as long as the vested right continues and as long as no substantial changes are made in the operation except in accordance with this chapter (PRC Section 2770(b)).

In May 2000, the Yuba County Community Development Director determined that Western Aggregates, LLC (Western) had vested rights to mine aggregate on 3,430 acres in the Yuba Goldfields. Following this action by the County, the decision was legally challenged, and in a January 2007 ruling, the California Court of Appeal, Third Appellate District, held that a proper public notice and hearing was required for any vested rights determination, and in the matter of Western's surface mining operation in the Yuba Goldfields, Yuba County, stated that the County failed to provide a proper notice and hearing in its consideration of vested rights for this surface mining operation [3rd District Court of Appeal (DCA) Ruling, 2006 (William Calvert et al. v. County of Yuba et al., 145 Cal.App.4th 613]. The court ruling provided two options for Western's consideration should Western want to continue its aggregate mining in the Yuba Goldfields. Western, or any surface mining operator, could either 1) obtain a permit to conduct such surface mining based on a public adjudicatory hearing before the County, or prove its claim of vested rights in a public adjudicatory hearing before the SMGB (to be conducted within the County's area of jurisdiction). Western decided to appeal to the SMGB.

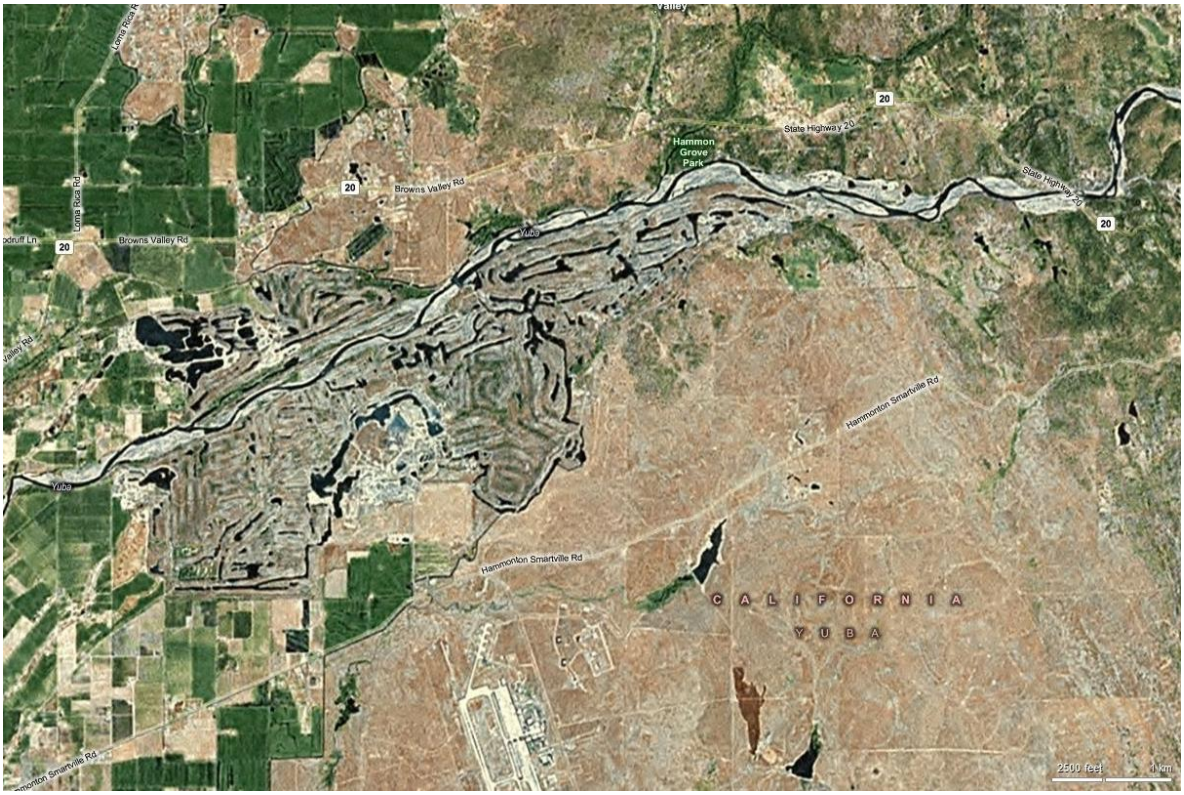

Figure 8. Satellite view of the Yuba Goldfields in Yuba County, CA. Extensive historic gold dredger tailings are easily discernable. (Photo credit: Google maps)

At its February 8, 2007 regular business meeting, the SMGB recognized its authority to conduct vested rights determinations (Resolution 2007-04), when serving as a Lead Agency under SMARA. At that same meeting, a Notice of Intent to seek confirmation of their vested rights for Western's Yuba Goldfields surface mining operations was received.

During 2007 and 2008, the SMGB formulated regulations for the conduct of a vested right when serving as a lead agency pursuant to SMARA. These regulations were enacted on September 13, 2008, and amended on July 23, 2009**.**

Authority of the SMGB and Director

In 2006, another court case, Mineral Associations Coalition et al., v. SMGB, the question of whether defendant, the SMGB, which operates within the California Department of Conservation, exceeded its authority in promulgating an administrative regulation requiring that the Director of the Department of Conservation (the Director) concur in any lead agency determination that a mine operator has fulfilled the terms and conditions of his reclamation plan and that the financial assurance instruments securing his obligation to reclaim lands shall be released.

The Court of Appeal of the State of California, Third Appellate District, concluded that while "*administrative regulations that alter or amend the statute or enlarge or impair its scope are void*," the burden is on the party challenging a regulation to show its invalidity, since "*the administrative agency's action comes before the court with a presumption of correctness and regularity*." Even the Associations do not deny that the Legislature has not spoken with

unequivocal clarity on the question of who shall have final authority to determine that a reclamation plan has been satisfactorily completed and that a mine operator should be released from the obligation of providing financial assurances. """*[T]he absence of any specific [statutory] provisions regarding the regulation of [an issue] does not mean that such a regulation exceeds statutory authority . . .*" The [agency] is authorized to "*fill up the details*" of the statutory scheme.'" Given (1) the substantial interest and responsibility of the Director in reclamation enforcement, as exemplified by his status as co-beneficiary of a mine operator's financial assurances, (2) the SMGB's statutorily prescribed role as the State's representative in enacting regulations designed to achieve satisfactory reclamation of mined lands, and (3) the absence of any clear provision conferring upon the lead agency sole decision making authority with respect to the subject matter, we conclude that the SMGB acted within the scope of its regulatory authority in requiring a lead agency to obtain the Director's concurrence before notifying the mine operator that he has satisfied the conditions of his reclamation plan and is no longer required to post financial security.

Memorandum of Understanding between the U. S. Forest Service, the Bureau of Land Management, and the State of California

In 1977, the Attorney General's office advised the SMGB that, barring actual conflicts with federal interests, SMARA could regulate private mining activities on federal lands. In the case California Coastal Commission et al. v. Granite Rock Company (March, 1987) the U. S. Supreme Court determined that there was no inherent preemption of State regulation of private activities on federal lands, and no assumption that the application of State law conflicts with federal interests. It was further recognized that the U. S. Forest Service regulations for Plans of Operations do not preempt State regulation because the regulations themselves contemplate and recognize State regulations. Although not articulated in this case, this is also true of the Bureau of Land Management's (BLM) regulations.

On October 19, 1992 the U. S. Forest Service, the BLM, the DOC, and the SMGB entered into a Memorandum of Understanding (MOU) for the purposes of:

- Assuring the application of adequate and appropriate reclamation through-out the State of California;
- Simplifying the administration of surface mining and reclamation practice requirements on Federal lands and on a combination of Federal and private lands;
- Achieving coordination of activity governing reclamation; and,
- Eliminating duplication among the aforementioned agencies and counties serving as lead agencies (as defined in SMARA) in implementing State and Federal requirements.

This MOU provides the framework required by local government entities, operators, and interested parties to enable full compliance with the letter and spirit of environmental protection laws for surface mining operations in California.

Following a presentation to the SMGB from BLM on September 11, 2008, updating of the MOU is being prepared by BLM for subsequent consideration of the SMGB's.

Guidelines

The SMGB adopted the following guideline pursuant to its statutory authority under SMARA.

- Board Internal Policy for Validating and Accepting Professionally Prepared Reports and Other Documents Submitted for Consideration Policy (Resolution 2004-04): Professional reports, documents, calculations, plans, specifications, maps, cross sections, boring or trench logs, and diagrams (*documents* hereafter) which must, under applicable law, regulation, or code, be prepared by or under the supervision of licensed professionals will not be accepted or considered by the SMGB unless at least one copy of the document bears an original signature, stamp impression or seal, and date affixed by the author in accordance with applicable law and regulation.

  Unless otherwise directed or agreed in advance, all professionally prepared documents included in SMGB, or SMGB committee, meeting packages or presented to the SMGB in a meeting are to be in final form and must be signed, stamped or sealed, and dated in accordance with applicable law and regulation.

MINERAL RESOURCES CONSERVATION

California is one of the nation's leading mining States in terms of both value and diversity of minerals produced, and based on preliminary data for 2008 ranks fifth after Arizona, Nevada, Florida and Utah in the value of non-fuel production. There were 1,224 reporting mines and quarries in the State for calendar year 2008. Of these, 717 produce non-fuel minerals. Combined production from these mines totaled approximately $4.0 billion worth of non-fuel minerals in that same year (Figure 9). Approximately 10,000 people are employed at these mines and their processing plants.

The only metals produced were gold and silver. California ranked 6th in gold production out of eleven States that reported for the year. Other minerals produced commercially include common clay, bentonite clay (including hectorite), crushed stone, dimension stone, feldspar, fuller's earth, gemstones, gypsum, iron ore (used in cement manufacture), kaolin clay, lime, magnesium compounds, perlite, pumice, pumicite, salt, soda ash, and zeolites.

California led the nation in the production of sand and gravel, diatomite and natural sodium sulfate, and was the only producer of boron and rare earth minerals. The State ranked second behind Texas for portland cement production. Despite a significant downturn in the production of construction grade sand and gravel in 2008, it continued to be California's leading industrial mineral, with an estimated total value of $1.10 billion for 108.5 million tons produced. California's second largest mineral commodity was portland cement valued at nearly $1.09 billion for 10.5 million tons produced. Valued at about $700 million, boron was California's third highest dollar-value mineral produced in 2008. U.S. Borax and Chemical Corporation Inc., (a subsidiary of Rio Tinto Inc.), led the State and nation in the production of borates at their Boron Mine and facility in Kern County. Crushed stone ranked fourth in the State with a value of $480 million.

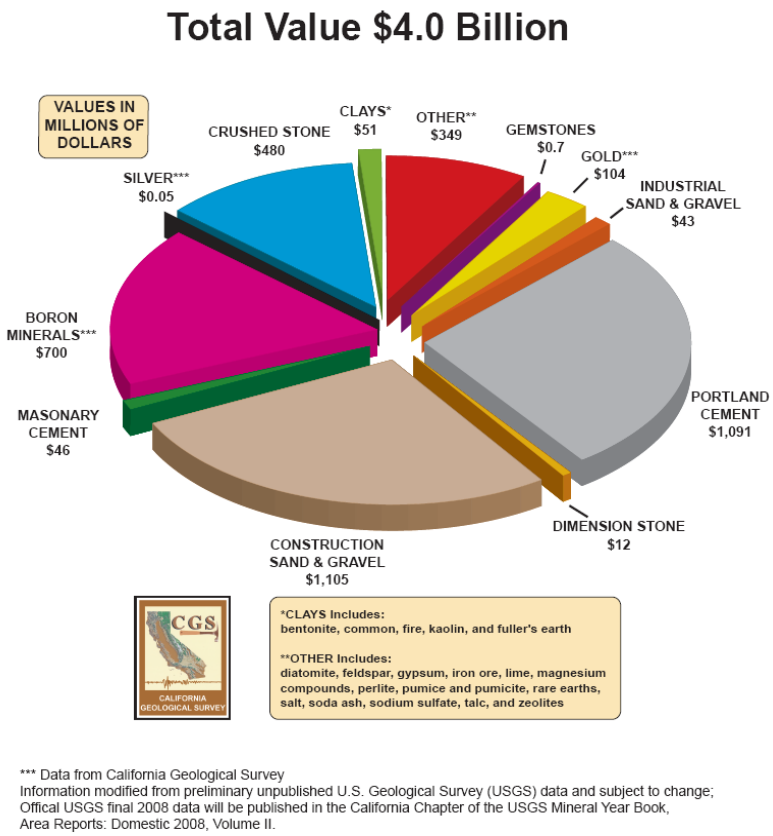

Figure 9. California non-fuel mineral production for 2008.

PROTECTION OF MINERAL LANDS

As California's population continues to grow rapidly, its communities face increasingly difficult and complex land use decisions. The production of mineral resources -- so necessary to support an expanding population -- must compete with other land uses such as agriculture, timber forests, urban development, and recreational, sensitive ecological or scenic areas. The rapid growth of many communities and the incompatibility of mining with most other land uses sometimes results in heated conflicts within those communities. Often, the mineral resource is needed by the very use which threatens it. For example, construction grade aggregate deposits, which are the sources for the construction and repair of roads, houses, and commercial buildings, often are built over before the resource can be extracted.

The objectives of these processes are to provide local agency decision makers with information on the location, need, and importance of mineral resources within their jurisdiction, and to require that this information be considered in local land use planning decisions. These

objectives are met through the adoption of local Mineral Resource Management Policies (MRMP) that provide for the conservation and prudent development of these mineral deposits.

In 2006, the CGS updated its Aggregate Availability in California – Map Sheet 52. This map and accompanying text provides general information about the current availability of California's permitted aggregate resources. Map Sheet 52 (2006) is an update of the original version published in 2002 (Kohler, 2002), and summarizes data from reports compiled by the CGS for 31 aggregate study areas throughout the State. These study areas cover about 25 percent of the State and provide aggregate for about 90 percent of California's population. This report is divided into three parts: Part I provides data sources and methods used to derive the information presented, Part II compares the updated 2006 Map Sheet 52 to the original map, and Part III is an overview of construction aggregate.

The map compares projected aggregate demand for the next 50 years with currently permitted aggregate resources in 31 regions of the State. The map also highlights regions where there are less than 10 years of permitted aggregate supply remaining.

Construction aggregate is essential to the needs of modern society, providing material for the construction and maintenance of roadways, dams, canals, buildings and other parts of California's infrastructure. Aggregate is also found in homes, schools, hospitals and shopping centers. In 2005, California consumed about 235 million tons of construction aggregate or about 6.6 tons per person. Because transporting aggregate is a significant part of the total cost to the consumer, aggregate mines generally are located close to communities that consume the aggregate.

The following conclusions were offered:

- About 32 percent of the total projected 50-year aggregate demand identified for the 31 study areas is currently permitted.

- Only six percent of the total aggregate resources identified within the 31 study areas are currently permitted.

- California currently has about 4.3 billion tons of permitted resources identified in the 31 study areas shown on Map Sheet 52.

- In the next 50 years, California will need approximately 13.5 billion tons of aggregate. This figure does not account for accelerated construction programs as a result of major bond initiatives, or from reconstruction following a major, damaging earthquake.

- Four of the updated aggregate study areas are projected to have less than ten years of permitted aggregate resources remaining as of January 2006 (pie diagrams highlighted with red borders).

- Ten of the updated aggregate study areas show less than 25 percent of the aggregate resources to meet the projected 50-year aggregate demand.

- About one-half (16) of the updated aggregate study areas show that 25 to 50 percent of the aggregate resources are available to meet the 50-year aggregate demand.

- Three (one tenth) of the updated aggregate study areas show between 50 and 75 percent of the aggregate resources are available to meet the 50-year aggregate demand.

- One study area shows between 75 and 100 percent of the aggregate resources to be available to meet its 50-year aggregate demand.

- Only one of the study areas has adequately permitted aggregate resources to meet or exceed its projected 50-year demand. The 2002 map showed six areas.

The information presented on Map Sheet 52 and in the referenced reports was provided to assist land use planners and decision makers in identifying those areas containing construction aggregate resources, and to identify potential future demand for these resources in different regions of the State. This information is intended to help planners and decision makers balance the need for construction aggregate with the many other competing land use issues in their jurisdictions, and to provide for adequate supplies of construction aggregate to meet future needs.

One of the first mineral commodities selected by the SMGB for classification by the State Geologist was construction grade aggregates, such as sand, gravel, and crushed rock. The importance of construction aggregate is often overlooked, even though it is an essential commodity in today's society. Aggregate is a key component in products such as portland cement concrete, asphaltic concrete (macadam), railroad ballast, stucco, road base, and fill materials.

California's construction industry is greatly dependent on readily available aggregate deposits that are within a reasonable distance to market regions. Aggregate is a low unit-value, high bulk-weight commodity; therefore, aggregate for construction must be obtained from nearby sources in order to minimize costs to the consumer. If nearby aggregate sources do not exist, then transportation costs quickly can exceed the value of the aggregate. Transportation cost is one of the most important factors considered when defining the market area for an aggregate mine operation.

In an effort to address this issue, SMARA provides for a method by which mineral lands may be "Classified" by the State Geologist, and "Designated" by the SMGB. These Classification and Designation processes are methods by which an inventory of the State's most valuable mineral deposits can be compiled and made available to local communities for inclusion in their land use decision making. The SMGB's statutory authority to incorporate mineral lands classification information into State policy is provided pursuant to Division 2, Chapter 9, Article 4, State Policy for the Reclamation of Mined Lands, PRC Section 2761(a), which states:

> *"On or before January 1, 1977, and, as a minimum, after the completion of each decennial census, the Office of Planning and Research shall identify portions of the following areas within the state which are urbanized or are subject to urban expansion or other irreversible land uses which would preclude mineral extraction:*
>
> *(1) Standard metropolitan statistical areas and such other areas for which information is readily available.*
>
> *(2) Other areas as may be requested by the board.*
>
> *(b) In accordance with a time schedule, and based upon guidelines adopted by the board, the State Geologist shall classify, on the basis solely of geologic factors, and without regard to existing land use and land ownership, the areas identified by the Office of Planning and Research, any area for which classification has been requested*

by a petition which has been accepted by the board, or any other areas as may be specified by the board, as one of the following:

(1) Areas containing little or no mineral deposits.

(2) Areas containing significant mineral deposits.

(3) Areas containing mineral deposits, the significance of which requires further evaluation.

The State Geologist shall require the petitioner to pay the reasonable costs of classifying an area for which classification has been requested by the petitioner.

(c) The State Geologist shall transmit the information to the board for incorporation into the state policy and for transmittal to lead agencies."

The SMGB's statutory authority to consider areas for designation is provided pursuant to Division 2, Chapter 9, Article 6, Areas of Statewide or Regional Significance, PRC 2790, which states:

"*After receipt of mineral information from the State Geologist pursuant to subdivision (c) of Section 2761, the board may by regulation adopt after a public hearing to designate specific geographical areas of statewide or regional significance and specify the boundaries thereof. Such designation shall be included as a part of the State policy and shall indicate the reason for which the particular area designated is of significance to the State or region, the adverse effects that might result from premature development of incompatible land uses, the advantages that might be achieved from extraction of the minerals of the area, and the specific goals and policies to protect against the premature incompatible development of the area.*"

The statutory authority which allows the SMGB to terminate, in whole or in part, an area previously designated is provided pursuant to PRC Section 2793 which states:

"*The board may, by regulation adopted after a public hearing, terminate, partially or wholly, the designation of any area of statewide or regional significance on a finding that the direct involvement of the board is no longer required*."

Classification

Classification is the method by which the State Geologist, in accordance with a time schedule and based upon guidelines adopted by the SMGB, geologically evaluates the State's lands and categorizes those lands as: (1) having little or no mineral deposits; (2) areas containing significant mineral deposits; and, (3) areas containing mineral deposits, the significance of which requires further evaluation. These determinations by the State Geologist are made based solely on geologic factors, and without regard to existing land use or land ownership. Mineral Classification information is transmitted to the SMGB by the State Geologist, and then is provided to locally affected jurisdictions (cities and counties) by the SMGB. An updated Mineral Land Classification Map for Portland cement concrete-grade aggregate in the San Bernardino Production-Consumption (P-C) Region is shown in Figure 10.

In some regions, large portions of the areas classified as having significant mineral deposits are already committed to other various urban uses, which prohibit access to the underlying resources. As an additional aid to local planning agencies, classification reports prepared for metropolitan areas also highlight non-urbanized portions of the classified mineral lands as Aggregate Resource Areas (ARA). These non-urbanized ARA's contain mineral deposits that remain potentially available for future use, and facilitate estimating the volume of aggregate material that is practically available in the region. ARA's may be considered for Designation by

the SMGB. Fifteen classification reports were completed between July 2000 and June 2009 (Table 10).

Table 10
Summary of Classification Reports
Accepted by the SMGB since 2000

Geographical Area	CGS Report No.	Title	Classified Acres	Date Accepted by SMGB
El Dorado County	OFR 2000-03	Mineral Land Classification of El Dorado County, 2000.	1,144,320	Uncertain
Butte County	OFR 2000-04	Mineral Land Classification of the KRC Holdings, Inc. M&T Chico Ranch Site, Butte County, California, for Construction Aggregate Resources, 2000.	627	06/15/2000
Tehama County	OFR 2000-18	Mineral Land Classification of Concrete-Grade Aggregate Resources in Tehama County, California, 2000.	1,891,000	Uncertain
Sonoma County	SR 175	Mineral Land Classification of Aggregate Materials in Sonoma County, California, 2005.	1,025,000	03/10/2005
Lassen County	SR 177	Mineral Land Classification of the Long Valley Pozzolan Deposits, Lassen County, California, 2003.	5,514.9	Uncertain
Monterey County	SR 180	Mineral Land Classification of Granite Construction Inc.'s Handley Ranch Site, Monterey County, California, 2005.	224	06/19/2003
San Diego County	SR 191	Mineral Land Classification of National Quarries' Twin Oaks Valley Road Site, San Marcos, San Diego County, California – for Construction Aggregate Resources, 2006.	160	09/14/2006
Riverside County	SR 198	Update of Mineral Land Classification for Portland Cement Concrete-Grade Aggregate in the Palm Springs Production-Consumption Region, Riverside County, California, 2007.	404,000	12/13/2007
Riverside County	SR 200	Mineral Land Classification of the Granite Construction Company Liberty Quarry Site, Temecula, Riverside County, California – for Portland Cement Concrete-Grade Aggregate, 2007.	290	06/14/2007
Los Angeles and San Bernardino Counties	SR 202	Update of Mineral Land Classification for Portland Cement Concrete-Grade Aggregate in the Claremont-Upland Production-Consumption Region, Los Angeles and San Bernardino Counties, California, 2007.	149,200	12/13/2007
San Bernardino and Riverside Counties	SR 206	Update of Mineral Land Classification for Portland Cement Concrete-Grade Aggregate in the San Bernardino Production-Consumption Region, San Bernardino and Riverside Counties, California, 2008.	693,900	12/11/2008

Table 10 Summary of Classification Reports Accepted by the SMGB since 2000 (continued)				
Kern County	SR 210	Update of Mineral Land Classification: Aggregate Materials in the Bakersfield Production-Consumption Region, Kern County, California, 2009.	1,150,456	10/08/2009
Riverside County	SR 212	Mineral Land Classification of the First Industrial Realty Trust Day Street Site, Riverside County, California – for Portland Concrete-Grade Aggregate, 2009.	500*	04/09/2009
Riverside County	SR 212 (Revised)	Revised Mineral Land Classification of the First Industrial Realty Trust Day Street Site, Riverside County, California – for Portland Concrete-Grade Aggregate, 2009.	80*	07/09/2009
Sacramento County	SR 213	Mineral Land Classification of the White Rock Road Properties, Mangini Property, Sacramento County – for Construction Aggregate, 2009.	586	04/09/2009

*According to CGS SR 212 (Revised), the total for these two areas is 597 acres.

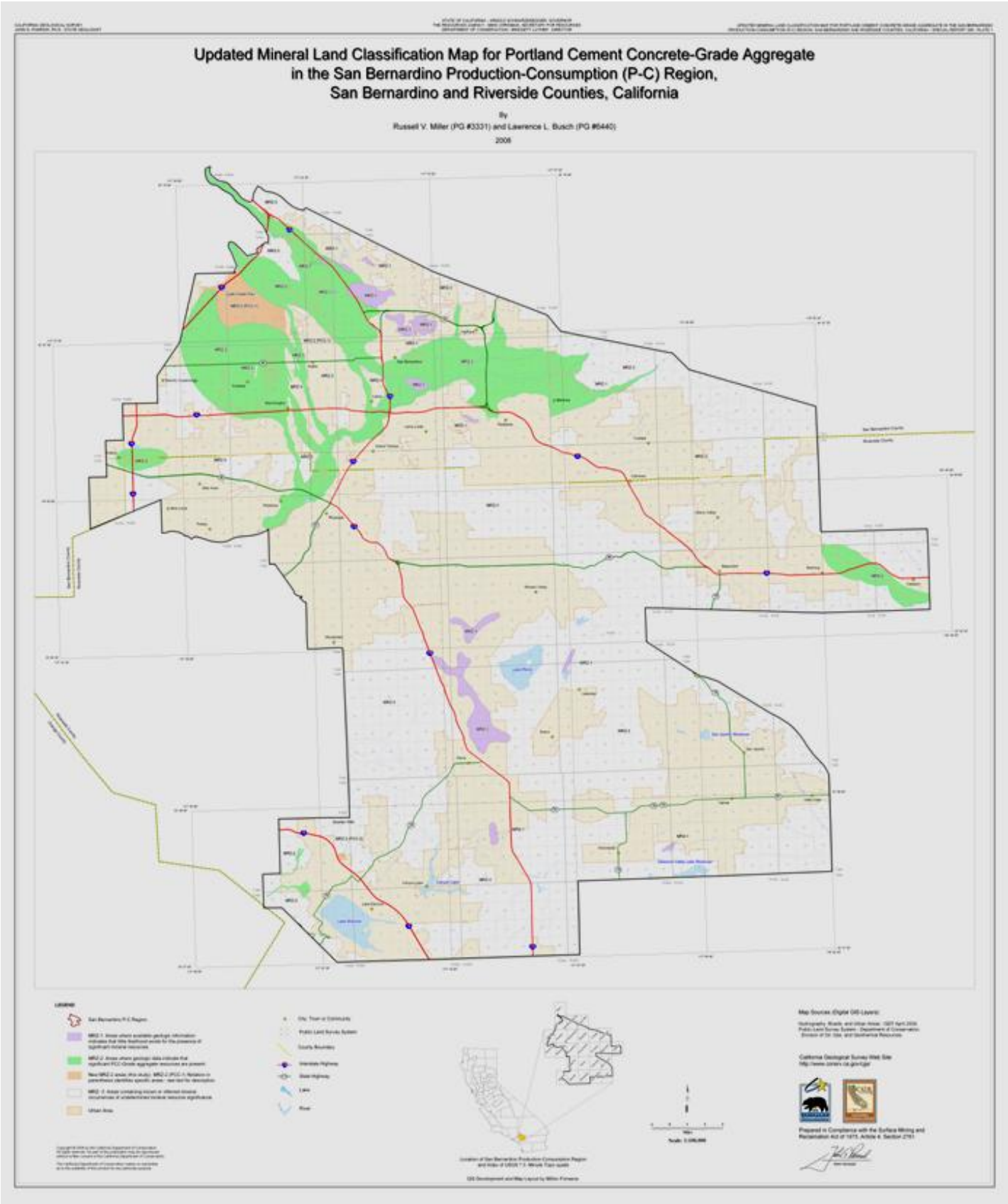

Figure 10. Updated Mineral Land Classification Map for Portland Cement Concrete-Grade Aggregate in the San Bernardino Production-Consumption (P-C) Region.

Classification Petitions

Between the period of July 2000 and June 2009, the SMGB accepted five mineral classification petitions. These petitions are summarized in Table 11.

Table 11
Mineral Lands Classification Petitions
Received from July 2000 through June 2009

Geographical Area	Date	Petition Request
Alameda County	9/22/05	Acceptance of a Petition for designation of three parcels of land totaling 212 acres being classified as MRZ-2 (areas containing significant measured or inferred aggregate resources) in the city of Pleasanton, Alameda County, for Rhodes and Jamieson LLC.
San Diego County	9/22/05	Acceptance of a Petition for re-classification of six irregularly shaped parcels totaling 210.9 acres as MRZ-2a for construction aggregates in the County of San Diego for National Quarries
San Diego County	11/10/05	Acceptance of a Petition for Mineral Land Classification for the Proposed Otay Hills Quarry site, Superior Ready Mix Concrete, L.P.'s Otay Hills Property, San Diego, California.
Riverside County	12/11/08	Acceptance of a Petition for Re-Classification of Mineral Resource Zone (MRZ) Lands from MRZ-3a to MRZ-2a, Day Street Project, Riverside County.
Sacramento County	4/9/09	Acceptance of a Petition for Re-Classification of Mineral Resource Zone (MRZ) Lands from MRZ-3 to MRZ-2, White Rock Road Properties, Mangini Property, Sacramento County.

Designation

Designation is the process by which the SMGB, based on analyses by the State Geologist and the CGS, information gathered from local communities, the mining industry, and other government agencies such as the Governor's Office of Planning and Research, determines that a particular mineral classified deposit is of regional (multi-community) or statewide economic significance. In contrast to Classification, which inventories mineral deposits without regard to existing land use, the purpose of Designation is to identify those areas that are of prime importance in meeting the future needs of the study region and that remain available from a land use perspective.

Designation is the state’s effort to conserve mineral resources in regions of expected rapid urbanization or other land uses that might prevent surface mining activities, and therefore result in a loss of the mineral resource to the community. To avoid dictating to local communities

where future aggregate mines should be located, mineral designated areas generally contain resources (un-permitted deposits) that are far in excess of the region's 50-year demand. This attempts to provide maximum flexibility to local governments in making land use decisions, while still conserving an adequate amount of construction aggregate for the future.

Prior to 1991, the SMGB designated 15 areas within the state, encompassing 259,585 acres, as having regionally significant economic mineral resources. Designation ceased when the costs of complying with the requirements of the California Environmental Quality Act (CEQA) became prohibitive, and agency budgets were being reduced because of the "California economic recession" of the early 1990's. Since that time, no additional areas have received mineral Designation status from the SMGB.

On March 11, 2009, the SMGB held two public hearings to receive comments for the designation, and termination of designation, of certain sectors situated within the Palm Springs Production-Consumption Region, Riverside County, and the Claremont-Upland Production-Consumption Regions, Los Angeles and San Bernardino Counties.

At its December 13, 2007, regular business meeting, the SMGB accepted CGS Special Report 198 which updated information previously presented in a classification report on Portland cement concrete-grade (PCC) aggregate in the Palm Springs Production-Consumption (P-C) Region completed in 1985. The previous report was published by the California Division of Mines and Geology (CDMG; now CGS) as Special Report 159 (SR 159) – *Mineral Land Classification: Aggregate Materials in the Palm Springs Production-Consumption Region*. The SMGB subsequently directed the Committee to receive the recommendations of the State Geologist and follow through with conduct of a public hearing, to receive comments, as appropriate.

The updated mineral classification report prepared by CGS, SR 198, presented the following conclusions:

- As of January 2006, eleven mines, operated by seven different mining companies, were producing PCC-grade aggregate in the Palm Springs P-C Region. In 1985, there were eight mines operated by five mining companies. In addition to PCC aggregates, these mines also produced a full range of lower aggregate grades for such products as asphaltic concrete and base.

- The anticipated consumption of aggregate in the Palm Springs P-C Region for the next 50 years (through the year 2056) is estimated to be 307 million tons, of which 45 percent, or 138 million tons, must be PCC quality. This is nearly double the 50-year consumption estimate made in SR 159.

- Since 1985, permitted PCC-grade aggregate reserves have increased from 67 million tons to 167 million tons, extending the projected depletion date from 2012 to 2038.

- Approximately 10 percent, or 911 acres of the 9,094 acres of lands designated by the SMGB in 1989, has been lost to land uses incompatible with mining.

- An additional 6,638 acres of land containing an estimated 472 million tons of PCC-grade aggregate resources have been identified in the Palm Springs P-C Region.

Based on this preliminary review, the State Geologist recommended acceptance of this updated mineral land re-classification report by the SMGB.

Based on further study and analysis, the State Geologist recommended several candidates, or areas, which meet or exceed the SMGB's threshold economic value, and each area may be considered for designation as an area of regional or statewide significance by the SMGB. These areas include eight areas which have been reclassified as MRZ-2a, and eight areas that have been reclassified as MRZ-2b. The State Geologist also recommended five areas for termination of designation.

Six areas (in five Sectors) are identified as potential candidates for termination of designation status due to high-value incompatible land use developments. Five areas, in Sectors A-3, B-2, B-3, and B-5 in the San Gorgonio Pass, are sites where large, high-value wind-driven electrical generators have been constructed. One area, Sector C in Little Morongo Canyon near Desert Hot Springs, is the site of recently constructed urban development and flood control infrastructure. These sites, located in the western part of the Palm Springs P-C Region, are shown on Plate 1. In addition to the areas described below, areas in Sectors E-1, E-2, and F are now underlain by a utility corridor carrying fiber optic cables. These areas amount to 100 acres containing 27 million tons of aggregate. Because these cables may be relocatable, allowing for the mining of the underlying aggregate, CGS is not recommending termination of designation status for these utility corridors at this time.

Within the Claremont-Upland Production-Consumption Region, 18 areas in eleven Sectors were identified by the State Geologist as potential candidates for termination of designation status because of high-value incompatible land use developments. New housing has been placed on 15 of the 18 areas; two areas are the site of a new freeway, and another area is crossed by a flood control channel.

ABANDONED MINE LANDS PROGRAM

Commencing in fiscal year 1997-1998, the Abandoned Mine Lands Unit (AMLU) was created within the DOC's Office of Mine Reclamation. This unit implements a field program to inventory California's pre-SMARA (i.e., before January 1, 1976 when SMARA became effective) historic abandoned mines, provide a preliminary assessment of any hazards observed, and remediate hazards on public abandoned mine lands (AML) to protect human life and safety and any associated wildlife and cultural values. In 2000, the AMLU published *California's Abandoned Mines: A Report on the Magnitude and Scope of the Issue in the State*. The AMLU also maintains the state's abandoned mine inventory database and convenes the AML Forum, a quarterly venue for the public and agencies to discuss abandoned mine issues. (For more information, see the AMLU website at www.consrv.ca.gov/OMR/abandoned_mine_lands.)

Many of the pre-SMARA mines that ceased operations before site reclamation was a state requirement and before various environmental regulations were enacted have been found to be hazardous to people and animals, and a threat to the natural environment. In rapidly urbanizing regions of the state as well as in heavily used recreational areas, these old mines may pose a very significant threat to the health and safety of the human population. The low level of knowledge about the location and effects of abandoned mines on the well-being of local

communities is becoming more evident in the face of new disclosure requirements or land-use planning and development.

For years, both local jurisdictions and state agencies have had permitting or regulatory authority over abandoned mines if those mines adversely affected water quality (Regional Water Quality Control Board) or if they contained hazardous wastes that could escape into the surrounding environment (Department of Toxic Substances Control). As a non-regulatory state entity that doesn't own or manage lands, the AMLU has taken a lead role in coordinating information regarding the character and type of abandoned mines in California, providing funding, staff, and/or technical expertise to inventory and remediate unsafe AML features, and recently taking the lead among many state landowning agencies to prioritize and coordinate abandoned mine remediation efforts on State-owned lands.

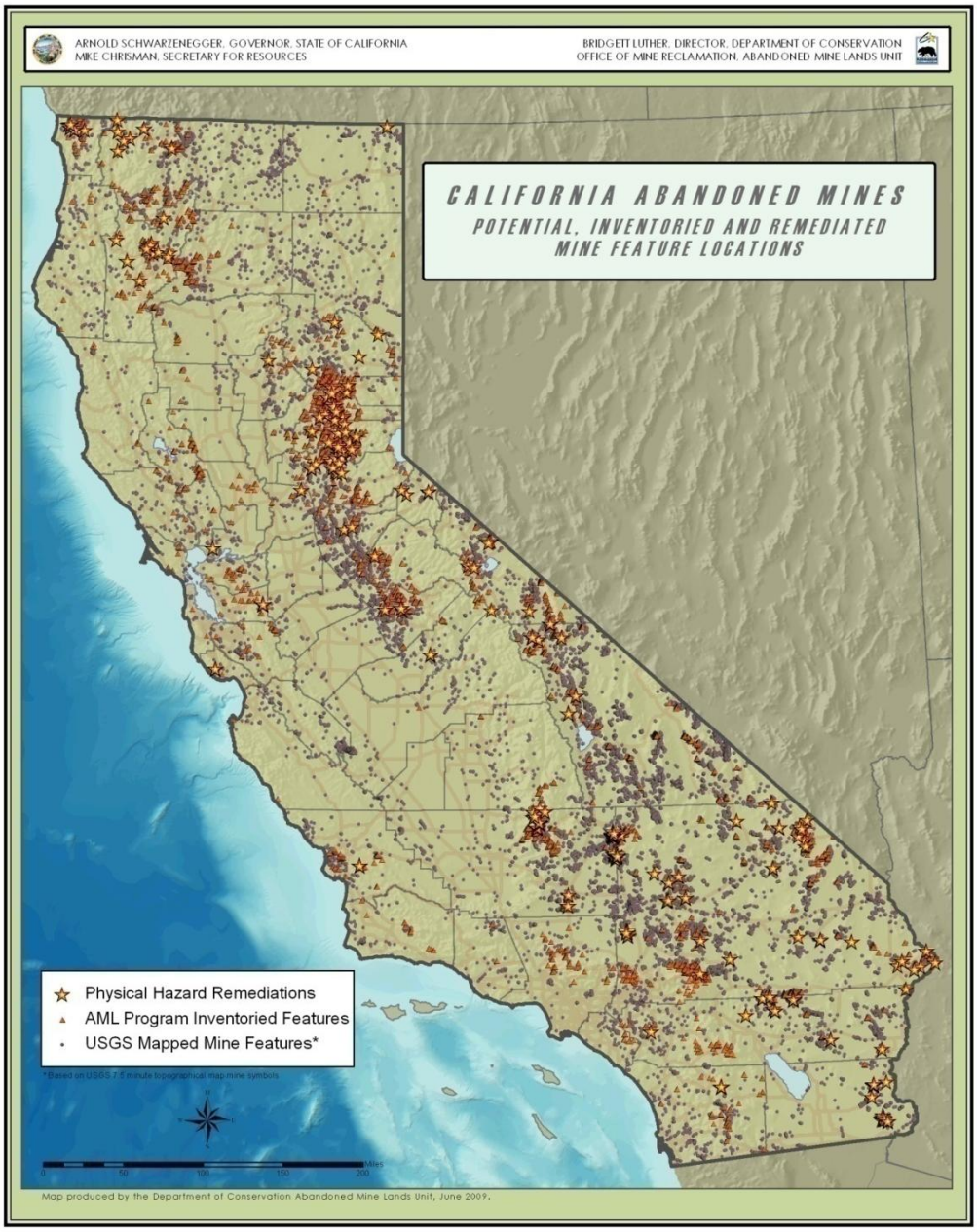

Figure 11. Location of abandoned mines potential, abandoned or remediated mine features in California.

The AMLU estimates that approximately 47,000 abandoned mine sites containing 165,000 mine features exist statewide (Figure 11). (A feature is a single human-made object or disturbance associated with mining, such as a shaft or adit [vertical or horizontal opening], tailings, machinery and facilities. A mine can be comprised of one or more features.) Of these 47,000 abandoned mines, about 67 percent are located on federal land (primarily on Bureau of Land Management, National Park Service, and U.S. Forest Service property), 31 percent are on private lands, and about 2 percent are on State or local lands. The AMLU estimates that about 62,000 of the State's 165,000 features present hazardous openings that could present a threat to human life.

In order to tackle this enormous task in a logical fashion, the unit works with other federal and State agencies and local organizations to compile and consolidate knowledge about abandoned mine sites. Where there is little information, the AMLU employs a watershed approach that begins in the areas with the highest potential threat to public health and safety and to the environment. The AMLU uses a combination of sophisticated survey technologies (geographical information systems, global positioning systems, etc.), literature research, and field work. The Topographically Occurring Mine Symbols (TOMS) dataset (created by the AMLU by digitally scanning mine symbols on U.S. Geological Survey 7.5' map series topographic maps) forms the nucleus of this work. Each TOMS point is considered a potential mine until a field inventory is completed and mine features are mapped. The California Geological Survey Library also provides a wealth of historical information. Local knowledge is often a valuable resource for historic abandoned mine information. AMLU has established a toll-free telephone number (1-877-OLD-MINE) to easily allow individuals throughout California contribute to the inventory.

The AMLU began remediating physical hazards associated with abandoned mines in 2001, when it helped close a hazardous abandoned mine shaft as a public safety demonstration project. In 2002, the AMLU began funding abandoned mine remediation projects in addition to its inventory work. Since 2006, the AMLU's primary funding sources to remediate physical hazards at abandoned mines come from federal funding and a legislatively created fee collected on gold and silver mined in California ($5 per ounce for gold and $0.10 per ounce for silver (Kuehl, Chapter 794, Statutes of 2003); Public Resources Code Section 2207(d)(4)(B)). Techniques that the AMLU has used to remediate hundreds of hazardous abandoned mine openings and associated debris include: wire fencing; backfills; polyurethane foam (PUF) closures; bat-compatible gates, cupolas, and culvert gates; fitting with concrete plugs and steel caps; and demolition and/or removal of unstable structures and trash. All work is conducted in accordance with CEQA or National Environmental Policy Act (NEPA) reviews completed by the land-owning agencies.

The AMLU has also successfully used media events to promote its remediation activities and its "Stay Out - Stay Alive!" message, which is part of a national public awareness campaign to warn children and adults about the dangers of exploring and playing near abandoned mines. In July 2008, AMLU staff organized a PUF closure of an abandoned mine shaft in the Auburn State Recreation Area that was filmed for an episode of Discovery Channel's "Dirty Jobs" shown in January 2009. In 2008, the AMLU coordinated several other media events featuring the closure of abandoned mine shafts and adits in California that reached a broad audience of television news viewers and newspaper readers.

Figure 12. AMLU contractor building a bat-friendly cupola over a hazardous abandoned mine. (Photo credit: Cy Oggins)

Some of the AMLU's accomplishments are listed below.

- Between 1997 and October 2009, the AMLU has collected inventory data on more than 2,800 abandoned mine sites and nearly 27,000 features.
- From 2001 through October 2009, the AMLU has helped to remediate more than 625 hazardous abandoned mine features, in partnership with more than two dozen local, State and federal partners. This includes more than 460 features since 2006, using Gold and Silver fees and federal award monies. Since 2002, the AMLU has provided more than $750,000 to its landowning agency partners to remediate physical hazards on their lands.
- In March 2007, the AMLU coordinated an effort with 14 other State and federal agencies to provide lists of priority AML environmental and physical hazard sites to Senator Feinstein's office and to obtain funding to remediate these sites.
- In June 2009, the AMLU coordinated the successful completion of a two-year characterization and remediation project at Bodie State Historic Park in Mono County in partnership with the State Department of Parks and Recreation and the U.S. Environmental Protection Agency Region 9 Superfund Technical Assessment and Response Team.
- In August 2009, the AMLU released a summary of a two-year inventory it completed of State-owned AML properties. Natural Resources Agency Secretary Mike Chrisman subsequently directed the DOC to take the lead role in prioritizing and coordinating abandoned mine remediation efforts on inventoried State-owned AML sites among the various land-owning

agencies, including the collaborative pursuit of any available funding sources.

- In September 2009, the AMLU received an award of nearly $4 million from the federal Bureau of Land Management (BLM) to remediate hazardous abandoned mines and inventory abandoned mine sites on BLM lands in California. In October 2009, the AMLU received $993,000 to begin project implementation.
- In October 2009, the AMLU was recognized for its participation in the BLM's "Fix A Shaft Today!" ("FAST!") Campaign—a partnership initiative aimed at eradicating unsafe abandoned mine land features, especially open mine shafts—when the unit was a co-recipient of the BLM's first Reclamation and Sustainable Development "FAST!" Award.
- As California's representative to the National Association of Abandoned Mine Land Programs (NAAMLP), the AMLU was recently selected to co-host, with Nevada, the 2011 NAAMLP Annual Conference (the first hardrock, non-coal States to serve as host) providing further opportunities to highlight California's AML issues and successes and raise awareness of AML hazards.

OTHER SMGB CONSIDERATIONS AND ACTIONS

The SMGB between July 2000 and July 2009, implemented a review of surface mining programs in the western States, set forth a resolution in review of the status of earth science education in California, held a public hearing to receive comments on reform of the federal Mining Law of 1872, and implemented a publication series which provides information upon which policy could be considered.

REVIEW OF REGULATORY SURFACE MINING PROGRAMS

In 2003, a comparative study of regulatory surface mining programs in the western States was conducted at the request of former Executive Officer Dr. John Parrish. Although a formal report was prepared which included details of each State's "SMARA-Type" program, a synopsis of this study had not been previously presented to the SMGB. The initial intent of the 2003 study was to determine whether other States required backfilling as a reclamation requirement, but this was quickly expanded to include a more complete comparison of their total programs. The thirteen States included in the comparison were Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming (Figure 13). Additionally the mining policies and program of the United States Bureau of Land Management (USBLM) were evaluated.

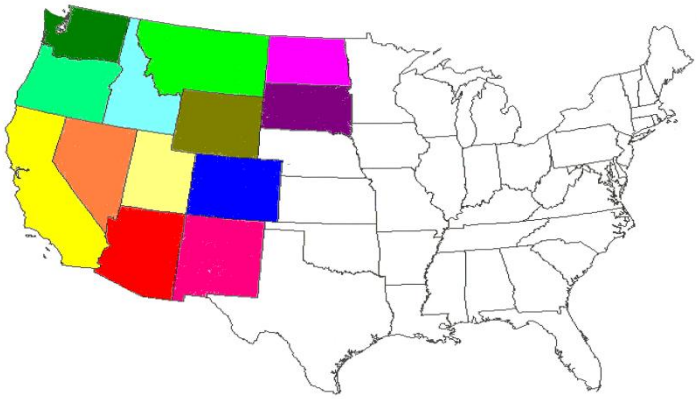

Figure 13. The thirteen western States compared in the California State Mining and Geology Board survey regarding surface mining.

The regulatory surface mining programs in thirteen Western States were compared with California's regulatory program under SMARA (SMGB Information Report 2007-04). Periodic State surveys from the Interstate Mining Compact Commission were the primary source of data and provided succinct summaries. Coupled with direct interviews and extensive use of individual State web pages the different regulatory models used by the western States could be sorted into four groups, based upon who issued mining permits. Differences and similarities were noted and are included in this summary. In addition a similar analysis was used made by the United States Bureau of Land Management (USBLM) as part of their "Surface Management Regulations for Locatable Mineral Operations (43 CFR-3809)." That analysis presents a federal perspective focusing on sovereignty and was also included in this summary.

EARTH SCIENCE EDUCATION

The state of science in the United States is of mounting concern, with disturbing national trends in science education, low public scientific literacy and competitiveness. In addition, the citizens of California are increasingly being asked to vote on complex initiatives requiring a basic understanding of the Earth sciences. Issues such as global climate change, asbestos in the environment, evolution, water policy, dam and building safety, toxic-site cleanup, energy use and policy, mining issues, earthquake risk, etc. have been passed to the citizenry for decisions in the past decade. A stronger factual knowledge of geologic processes is essential if these decisions are to be based on more than emotion or special interest groups.

Acknowledgement of the inadequate condition of Earth Science Education in the United States has been reported over the past several years. The dilemma is summarized below:

- Enrollment in Earth sciences has dropped dramatically over the past decade with many States dropping earth science classes from the high school curriculum.

- Earth science is the only mainstream science that does not have an "Advanced Placement" course requirement.

- Only 7 percent of students take Earth sciences in high school, in comparison to 27 percent in the late 1960s.

- Most students in Earth science at the college level do not come from an interest in Earth science or from an introduction to earth science in high school, but rather from introductory college courses.

- About 360,000 students take introductory Earth science courses in college; whereas, at most only 1 to 2 percent, or roughly 4,000 college students, are captured as majors.

Several factors further illustrate the problem.

- <u>No Child Left Behind (NCLB) Legislation Science Assessment</u>: In 2007, NCLB legislation requires States to administer a science assessment once during each grade band: 3-5, 6-9 and 10-12. This can have both a positive and a negative effect on the teaching of Earth science, as the States have a great deal of say as to what science is assessed at each level. The NCLB tests can be used to justify including Earth science or excluding earth science, depending upon the wishes of individual States.

- <u>Disappearance of Earth Science in the High School Curriculum</u>: The National Science Education Standards (NRC, 1996) and the Benchmarks for Science Literacy (AAAS, 1993) clearly underscore why an understanding of core Earth science concepts is central to literate citizenship. Opportunities to learn about Earth science in secondary schools are more limited than they were in the past. With an increased focus on standardized testing in reading and mathematics, many States and school districts have dropped Earth science from their curriculum and assessments in an effort to focus instructional time on the goals of tests (Smith and Callahan, 2002). In the United States, only seven percent of students take Earth and Space science in high school,

compared with 88 percent who take high school biology (Barstow et al., 2001; Weiss, 2002). Only one-third of United States high schools offer at least one first-year course in an Earth science topic, with astronomy being the most common course offered (Weiss, 2002).

Earth science is disappearing in a number of States at the high school level and being moved to the middle school level. One reason for this is that there is no Advanced Placement exam for Earth science (although there is one for Environmental science.) Another reason is that there is a movement to re-arrange the typical sequence of science courses in high school to have Physics in grade 9 (where Earth science is usually taught), followed by biology in grade 10 and chemistry in grade 11, or Chemistry in grade 10 and Biology in grade 11. This Physics First approach is endorsed by the American Association of Physics Teachers as a way of introducing more students to physics in high school. It completely eliminates the possibility of Earth science for students in schools where only 2 to 3 credits of science are required for graduation.

- Perception of Earth Science High School Courses as "Non-Laboratory Course" by Colleges and Universities: Some States such as California, Texas and Massachusetts, do not consider Earth science as a laboratory course suitable for preparation for college. This is despite a recent National Research Council report on science labs in schools that cites Earth science laboratory examples (America's Lab Report; Investigations in High School Science, 2005). States that do not consider earth science as a lab science are more likely to offer Earth science courses in the middle grades.

- Under-prepared Teachers Teaching Earth Science in Both Middle and High Schools: For the relatively few students who are able to take an Earth science course in middle or high school, there are additional problems. They may have an instructor who is teaching out-of-field or who has no preparation in the natural sciences at all. Secondary Earth science teachers have, on average, the least number of university courses in their field. Twenty-eight percent of the high school teachers teaching Earth science are not certified in that subject. Many middle school Earth science teachers are not only teaching out-of-content field, but come from teaching self-contained classes in elementary school. To add to this problem, in the next four years, approximately one-third of the Earth science teachers currently working in schools will retire. Who will supply the shortfall of highly qualified Earth science teachers? The numbers of college students graduating with bachelor's degrees in the geosciences continues to decline from the 1982 high of 7,253 graduates to its 2005 level of 2,436 graduates. Colleges and universities that prepare secondary Earth science teachers must be able to attract students to programs that combine instruction in pedagogy with current geoscience theory and practice. For example, these programs should have an earth systems approach, incorporate a field component, and make use of geospatial technologies. Such programs can be readily adapted to professional development classes and workshops for in-service teacher audiences. It is only in this way that Earth science teachers can truly get the "flavor" of what it means to be a geoscientist and be able to translate that to their students.

- 2006 National Assessment of Educational Progress (NAEP) Emphasis on Earth Science in Middle Schools: There is a higher percentage of Earth science to non-Earth science test items on the 2006 NAEP at the middle school level than at the high school level. NAEP's explanation for this is that most Earth science in the United States is taught at the middle school level. The difficulty is that this emphasis on middle school Earth science education by NAEP can offer support to school districts who wish to eliminate Earth science from their high school programs.

The SMGB represents the State interests in the need to provide public information on a number of geologic matters. Division 1 of the PRC, Chapter 2, Section 672 states:

> "*…The board shall also represent the state's interest in the development of geological information necessary to the understanding and utilization of the state's terrain, and seismological and geological information pertaining to earthquake and other geological hazards...*"

In 1982, the SMGB adopted Resolution 82-10 pertaining to Geologic Curriculum in the Public Schools. This resolution reflected the SMGB's concern that the need for public understanding of geology, reflecting "*California's high potential for such geologic hazards as earthquakes and landslides, combined with our society's continuing need for mineral resources and concern for environmental protection, requires a public understanding of geology*" were not being met.

At its February 8, 2008 regular business meeting, the SMGB in its capacity to provide public information on a number of geologic matters, adopted of Resolution 2007-03, in support of adding Earth and Space Science to the University of California's "d" laboratory requirement. The University of California's "d" and "g" requirements for "laboratory science" in the high school specify "*two years from…the fields of biology, chemistry, and physics*"; however, the national standards for "core courses" at the secondary school level, issued by the National Research Council in 1996 include "life science", "Earth and space science (ESS)", and "physical science" as core subjects. Proposed recommendations are being considered for the University of California to add Earth and Space Sciences to its specified laboratory science admission requirements. This reform would not reflect an increase in that requirement, but rather set forth an increase in choice and flexibility of that requirement, and would bring California's science educational standards up to the national level.

MINING LAW REFORM

The SMGB pursuant to Division 1, Chapter 2, Article 2, PRC Section 672, "*The board shall represent the state's interest in the development, utilization, and conservation of the mineral resources of the state and the reclamation of mined lands, as provided by law, and federal matters pertaining to mining, and shall determine, establish, and maintain an adequate surface mining and reclamation policy…*"

On March 13, 2008, the SMGB held a public hearing to receive comments on 1872 Mining Law Reform. The General Mining Law of 1872 was signed into law by President Ulysses S. Grant, to promote the development and settlement of publicly-owned lands in the western United States. The General Mining Law of 1872 is a United States federal law that authorizes and governs prospecting and mining for economic minerals, such as gold and silver, on federal public lands. This law, approved on May 10th, 1872, codified the informal system of acquiring and protecting mining claims on public land, formed by prospectors in California and Nevada from the late 1840s through the 1860s, such as during the California Gold Rush. The Mining Law of 1872, as amended, has five elements: 1) discovery of a valuable mineral deposit, 2)

location of mining claims and sites, 3) recordation of mining claims and sites, 4) maintenance (annual work/surface management) of mining claims and sites, and 5) mineral patents. The activities associated with the first two elements are carried out by the claimant. The Mining Law Administration program which is managed by the Bureau of Land Management (BLM) through its Mining Law Administration program involves primarily the last three elements: recordation, maintenance (annual work/surface management), and mineral patents. Surface management on National Forest System lands is administered by the Forest Service, Department of Agriculture.

There are three basic types of federal minerals on federal lands: locatable, leasable, and salable. These minerals have been defined by federal laws, regulations, and legal decisions. Under the Mining Law of 1872, all citizens of the United States of America 18 years or older have the right to locate a lode (hard rock) or placer (gravel) mining claim on federal lands open to mineral entry. These claims may be located once a discovery of a locatable mineral is made. Locatable minerals include but are not limited to platinum, gold, silver, copper, lead, zinc, uranium and tungsten. Leasable minerals include borax, soda ash, potash, sodium sulfate, and salt, which are derived mostly from Searles Valley Minerals' (SVM) Trona, Westend and Argus facilities at Searles Lake in Inyo and San Bernardino Counties. Sand, gravel or construction grade aggregate are examples of non-locatable minerals not subject to claims under the provision of the General Mining Law, and referred to as salable minerals.

There have previously been several attempts to reform the mining law. The latest attempt was on November 1, 2007, when the House of Representatives passed, by a vote of 244 – 166, the Hardrock Mining and Reclamation Act of 2007 (H.R. 2262). This bill was received by the 110th Congress, 1st Session on November 5, 2007, and moved to the Senate where it remained.

In California, federally managed lands comprise 45percent of the State's total land area. California's Surface Mining and Reclamation Act of 1975 (SMARA) has a dual role, and provides for both mineral resource conservation and mined land reclamation. The SMGB (Resolution No. 81-5), and the United States Supreme Court (Granite Rock Company v. California Coastal Commission), have previously determined that SMARA applies to all lands in California, regardless of ownership.

The major federal law governing locatable minerals is the Mining Law of 1872 (May 10, 1872), as amended (30 U.S.C. 22-54). This law provides citizens of the United States the opportunity to explore for, discover, and purchase certain valuable mineral deposits on those Federal lands that remain open for that purpose. These minerals include metallic minerals and certain nonmetallic minerals. The law also sets general standards and guidelines for claiming the possessory rights to valuable minerals discovered during exploration. Other provisions provide for the enactment of State laws that are consistent with Federal law. Therefore, most States have enacted laws that prescribe the manner of locating and recording mining claims, tunnel sites, and mill sites on federal lands within their boundaries.

Topics and Issues: Several topics and issues have been raised in the recent version of H.R. 2262, and by various stakeholders. These topics and issues include, but are not limited to, limitation of patents on mining claims, royalties and fees, hardrock mining claim maintenance fees, mining permits, number of claims filed on federal lands, abandoned mines, among others.

Limitation of patents on mining claims: The 1872 Mining Law allows any citizen who stakes a legitimate mining claim on public lands to obtain property rights in both minerals and the surface within the boundaries of the mining claims. This incentive was created to encourage post Civil War citizens to venture westward to populate and reap the rewards of the vast and untapped natural resources of a developing United States. A patented claim is one for which the federal

government has passed its title to the claimant, making it private land. A mineral patent gives the owner exclusive title to locatable minerals. It also gives the owner title to the surface and other resources. A mining claim is the right to explore for and extract minerals from a tract of land. The mining law of 1866 gave discoverers rights to stake mining claims to extract gold, silver, cinnabar (the principle ore of mercury), and copper. When Congress passed the General Mining Act of 1872, the wording was changed to "or other valuable deposits," giving greater scope to the law.

Once a claim is made by an individual or company, the federal government does not surrender all rights. There is property rights vested to the claim holder; however, the federal government (both BLM and the Forest Service) still has the right and responsibility to regulate the activities of the claim holder. This provision would end the federal government's practice of allowing individuals to patent a mining claim, which has gone basically unchanged since 1872, and allow more flexibility for the federal government to regulate these mine operators. Since 1994 there has been a congressionally-mandated moratorium on patenting.

H. R. 2262 would have prohibited the issuance of a patent by the United States for any mining claim located under the general mining laws, or under certain circumstances a millsite, unless a determination is made that 1) a patent application was filed with the Secretary on or before September 30, 1994, and 2) all requirements of the Revised Statutes for placer claims were fully complied with by that date.

The SMGB may hear testimony about the on-going need for a patenting process. Similarly, the SMGB may wish to inquire of those offering comments about their perspective on the need for patenting. Public lands advocates have generally opposed patenting as a method for bringing public land into private ownership "on the cheap." Mining advocates frequently cite patenting as an important means of helping ensure that mining can occur, given the speculative nature about the commodities mined, the other significant start-up costs, and the risk of a deposit not proving economic.

Royalties and Fees: The Mining Law of 1872 does not require any royalties or fees for the extraction of minerals.

California's SMARA recognizes that the extraction of minerals is essential to the continued economic well-being of the state and to the needs of the society. SMARA specifically states that the production and conservation of minerals are to be encouraged, while giving consideration to values relating to recreation, watershed, wildlife, range and forage, and aesthetic enjoyment. SMARA also requires that residual hazards to the public health and safety be eliminated and mined lands be reclaimed. In California, under its general mining statutes (Public Resources Code Section 2207, not SMARA), the owner or operator of any mining operation of whatever kind must file an annual report and pay an annual reporting fee not to exceed four thousand dollars ($4,000) and not less than one hundred dollars ($100), as adjusted for the cost of living. The monies collected are used by the State to ensure that mines subject to SMARA are regulated to ensure that adverse effects of mining are minimized or eliminated and that mines are reclaimed to a useable condition. California also collects five dollars ($5) per ounce of gold and ten cents ($0.10) per ounce of silver mined within the state. The fees collected are to be used solely for the remediation of abandoned surface mines.

H. R. 2262 would have imposed an 8 percent royalty on the net smelter return of minerals on new claims, and a 4 percent royalty on existing claims. If this sort of royalty system were adopted, an estimated $30 million to $70 million would be collected for cleanup of abandoned mines on federal lands. H. R. 2262 also would have required 50 percent of the royalties for the

Hardrock Reclamation Fund go to the states, in proportion to their royalty generation levels. Other amendments would have clarified "*valid existing rights*", and allowed river watersheds to receive funding from the Abandoned Locatable Minerals Mine Reclamation Fund.

The Board may hear testimony about royalties from mines operating on federal lands. Discussion may focus on how royalties are calculated and whether they are calculated as a percentage of gross mine receipts or on net mine revenues. Some commentators may note that royalties are now paid by oil companies extracting oil from federal on-shore and off-shore lands and that – in the case of California – 50 percent of those royalties are returned to the state. Others may note that imposition of a royalty, either on a gross or net basis, could harm the profitability of mining or discourage mine operators from even seeking production on federal lands.

Hardrock Mining Claim Maintenance: Under the General Mining Law of 1872, mine operators who have staked a claim must perform a set amount of annual maintenance, up-keep and/or exploration on the claim to maintain the validity of the claim. For claims located after May 10, 1872, a minimum of $100 worth of labor must be performed, or improvements made, during each year. For claims located prior to May 10, 1872, a minimum of $10 worth of labor or improvements is required each year, for each 100 feet in length along a vein. Provided that work is completed, the mining claim remains valid and can, at some point in the future, be the subject of a request for patenting. In 1992, the only claimants that perform annual maintenance are the small miners (i.e., 10 claims or less). This became effective in 1993 when the "claim maintenance fee" replaced the work requirement. The fee was initially set at $100/claim and was to be adjusted every five years. The Department of the Interior raised it to $125/ claim in 2005. These fees are not shared with the States; whereas, the rental fees for leasable commodities are. The land holding costs for minerals are some of the highest in the world; Sierra Leone (artisanal miners) and Norway have some that are higher.

H. R. 2262 would have required a claim maintenance fee of $150 per claim to hold an unpatented mining claim. This fee would have been in lieu of the assessment work requirement contained in the Mining Law of 1872.

The SMGB may wish to consider whether payment of a fee should meet the requirements for exploration, given that simply paying a fee may hold a claim open indefinitely, while maintenance and exploration of a claim must, inevitably, result in sufficient information for the operator to determine whether the claim shows any promise of mineral production.

Mining Permit: The Mining Law of 1872 gives individuals the right to enter upon the public lands, to file a mining claim, and commence mining. Federal agencies are often constrained in effectively regulating mining when the mine operator asserts that his "right to mine", provided by the Mining Law of 1872, has priority over other regulations adopted subsequently to protect public health, safety, and the environment. The only documented cases where the Federal government has been required to compensate an individual claim owner or company for takings and infringing on a person's "right to mine" is when an existing claim(s) has been included in a National Monument, National Park, Wilderness area or some other type of designation that may prevent an operation from going forward. In each case a validity exam would have to be conducted by the surface management agency (BLM or Forest Service). The agency might contest the validity of the claim if their evaluation did not indicate the presence of a "valuable mineral", but the bar for meeting that standard is very high and meeting that bar has become more difficult over time. A claimant that was denied a patent because the claim did not contain a valuable mineral would have an opportunity to appeal the decision before the Department of the Interior's Board of Land Appeals and then in federal court.

In California, even mines deemed to be "vested" as pre-SMARA (1975 for reclamation planning, and 1991 for current reclamation standards) must have a reclamation plan and financial assurances. There is no assertion allowed that a mine operator previously secured a "right to mine" by a local government's land use permitting and, thus, does not need to meet environmental compliance standards for mine operation or reclamation.

Also, mines on federal land within the confines of California are required to comply with SMARA, obtaining reclamation plans and financial assurances, regardless of the federal requirements.

HR 2262 would have established an environmental standard that requires mineral activities on federal lands to be conducted in a manner that does not unduly degrade the environment or jeopardize public health and public safety, and to be conducted in a manner that recognizes the value of the lands for other uses. Further, H.R. 2262 would have mandated that land subject to mineral activities would be restored to a condition capable of supporting its prior uses or other beneficial uses that conform to applicable land use plans. Finally, H.R. 2262 would have required that a mine operator's application for an operations permit include plans for operations, reclamation, monitoring, long-term maintenance, and accident contingency, as well as require mining operators to provide evidence of financial assurances sufficient to cover mine reclamation and restoration. These provisions are similar to those found in existing BLM and Forest Service regulations, in California's SMARA and, in some cases, go beyond SMARA (though not necessarily beyond other California state laws).

The SMGB may wish to discuss whether there is any confusion about the application of California's SMARA requirements and other laws to mines on federal land. Public land advocates likely will argue that federal rules are insufficient. Mining advocates likely will argue that state rules (such as SMARA) provide sufficient environmental protection and also that imposition of new rules on mines that are already operating could cause them to shut-down operations prematurely if the new costs of environmental compliance exceed their fiscal projections for environmental compliance costs over the life of the operation.

Filing of Claims: The BLM has tabulated the number of claims per agency (National Forest, BLM, National Parks Service, Military, and Fish and Wildlife Service). BLM as of February 2008 notes a total of 12,008 lode claims, 1,574 millsites claims, 10,690 placer claims, and 20 tunnel sites, for a total of 24,292 claims. The large number of filing claims near national parks and other federally protected lands has raised concerns from environmental groups. The main concern is that if even a small percentage of these claims turn into actual mining sites, the environmental impact on California's national parks and other public lands could be significant.

The SMGB may wish to consider whether the process of allowing mining claims is still necessary, given that the original intent ("settle the West") reasonably can be said to have been accomplished. Public lands advocates likely would state that the claims process, like that of patenting, is out-dated and should be revised or abolished. Mining advocates likely would state that the claims process allows a mine operator to protect from modern-day "claim jumpers" by filing a claim and engaging in reasonable exploration until the mine operator is certain that a deposit exists.

Abandoned Mines: California's federal and state Abandoned Mine Lands (AML) agencies estimate that there are about 47,000 abandoned mines located throughout the State. About 67 percent are located on federal lands, 31 percent on private land and 2 percent on State or local land. The large number of abandoned mines poses a serious threat to the environment and to public health, safety and welfare.

The royalty provisions of H. R. 2262 would have directed that some of those royalties be paid to states for remediation of abandoned mine hazards.

The SMGB may wish to consider whether funds from royalties on mining of federal lands should be returned to states with directives about how to expend the monies (for instance, on abandoned mine remediation or, perhaps, mineral classification studies). Public land advocates likely would argue that the royalties should be expended on remediation of abandoned mines, noting the parallel that they are the result of past mining. Mining advocates likely would argue that royalties are unnecessary, but that if they are imposed, they should fund mineral classification studies to ensure better land use planning so that mineral resource needs can be met locally. Mining advocates likely also will argue that they should not be called upon to pay for past operations' failures to clean-up.

SMGB'S INFORMATION REPORTS

On occasion, the SMGB requests from staff comprehensive or focused analysis on topics of interest to the SMGB, prior to considering policy decisions. These reports commonly take the form of an Executive Officer's report, accompanied by a power point presentation, when appropriate. However, only the Executive Officer's report is regularly provided to the SMGB's stakeholders on the SMGB's website. The SMGB has been frequently approached by industry, professional organizations, regulators, and other interested parties and stakeholders, requesting copies of the power point presentations. In order to maintain the context of the information and presentation, information reports have been prepared and, made available in digital form on the SMGB's website. These reports do not set forth policy, but rather presents information that the SMGB reviews in considering policy. A summary of such reports is presented in Table 12.

Table 12
Summary of Published Information Reports

Information Report No.	Description	Date	Authors
SMGB IR 2007-01	Report on SMARA Lead Agency Performance Regarding Mine Reclamation	June 2007	Stephen M. Testa and David J. Beeby
SMGB IR 2007-02	Report on Backfilling of Open-Pit Metallic Mines in California	January 2007	Stephen M. Testa and James S. Pompy
SMGB IR 2007-03	A Review of the State's Mineral Resources Management Program and its Components – Status and Effectiveness of Review Efforts	November 2007	Stephen M. Testa and David J. Beeby
SMGB IR 2007-04	A Comparison of Regulatory Surface Mining Programs in the Western United States	September 2007	David J. Beeby
SMGB IR 2007-05	A Report on the Mineral Land Classification and Designation Program under the California Surface Mining and Reclamation Act of 1975	July 2008	Stephen M. Testa and David J. Beeby
SMGB IR 2009-06	A Survey of Lead Agencies Affected by the Alquist-Priolo Earthquake Fault Zoning Act	June 2009	Stephen M. Testa, William Bryant and Jerry Treiman

APPENDIX A

Public Resources Code Sections 660-678

660. There is in the department a State Mining and Geology Board consisting of nine members appointed by the Governor, subject to confirmation by the Senate.

661. As used in this article, "board" means the State Mining and Geology Board and "division" means the California Geological Survey of the department.

662. (a) One member of the board shall be a professional geologist with background and experience in mining geology; one member shall be a mining engineer with background and experience in mining minerals in California; one member shall have background and experience in groundwater hydrology, water quality, and rock chemistry; one member shall be a representative of local government with background and experience in urban planning; one member shall have background and experience in the field of environmental protection or the study of ecosystems; one member shall be a professional geologist, registered geophysicist, registered civil engineer, or registered structural engineer with background and experience in seismology; one member shall be a landscape architect with background and experience in soil conservation or revegetation of disturbed soils; one member shall have background and experience in mineral resource conservation, development, and utilization; and one member shall not be required to have specialized experience.

(b) All members of the board shall represent the general public interest, but not more than one-third of the members at any one time may be currently employed by, or receive more than 25 percent of their annual income, not to exceed $25,000 a year per member, from an entity that owns or operates a mine in California. The representative of local government shall not be considered an employee of an entity that owns or operates a mine if the lead agency employing the representative owns or operates a mine. For purposes of this section, retirement or other benefits paid by a mining entity to an individual who is no longer employed by that entity are not considered to be compensation, if those benefits were earned prior to the date the individual terminated his or her employment with the entity.

(c) If a member of the board determines that he or she has a conflict of interest on a particular matter before the board pursuant to subdivision (b) or Section 663, he or she shall provide the clerk of the board with a brief written explanation of the basis for the conflict of interest, which shall become a part of the public record of the board. The written explanation shall be delivered prior to the time the matter to which it pertains is voted on by the board.
This disclosure requirement is in addition to any other conflict-of-interest disclosure requirement imposed by law.

663. (a) No member of the board shall participate in any action of the board or attempt to influence any decision of the board that involves himself or herself, or any person with whom he or she is connected, as a director, officer, paid consultant, or full-time or part-time employee, or in which he or she has a financial interest within the meaning of Section 87103 of the Government Code.

(b) No board member shall participate in any proceeding before any state or local agency as a consultant or in any other capacity on behalf of any person who engages in surface mining operations.

(c) Upon request of any person, or on his or her own initiative, the Attorney General may file a complaint in the superior court for the county in which the board has its principal office alleging that a board member has knowingly violated this section, alleging the facts upon which the allegation is based, and asking that the member be removed from office. Further proceedings

shall be in accordance as nearly as practicable with rules governing civil actions. If after trial the court finds that the board member has knowingly violated this section it shall order the member removed from office.

663.1. (a) For the purposes of this section, "ex parte communication" means any oral or written communication between a member of the board and an interested person about a matter within the board's jurisdiction that does not occur in a public hearing, workshop, or other official proceeding, or on the official record of the proceeding on the matter.

(b) For purposes of this section, "a matter within the board's jurisdiction" means any action on a reclamation plan or financial assurance appealed pursuant to subdivision (e) of Section 2770, any review of an order setting administrative penalties pursuant to Section 2774.2, or any review of an appeal pursuant to Section 2775.

(c) A board member or any person, other than a staff member of the board, department, or any other state agency, who is acting in his or her official capacity and who intends to influence the decision of the board on a matter within the board's jurisdiction, shall not conduct an ex parte communication, unless the board member or the person who engages in the communication with the board member discloses that communication in one of the following ways:

(1) The board member or the person fully discloses the communication and makes public the ex parte communication by providing a full report of the communication to the executive officer or, if the communication occurs within seven days of the next board hearing, to the board on the record of the proceeding of that hearing.

(2) When two or more board members receive substantially the same written communication or receive the same oral communication from the same party on the same matter, one of the board members fully discloses the communication on behalf of the other board member or members who received the communication and requests in writing that it be placed in the board's official record of the proceeding.

(d) (1) The board shall adopt standard disclosure forms for reporting ex parte communications which shall include, but not be limited to, all of the following information:

(A) The date, time, and location of the communication.

(B) The identity of the person or persons initiating and the person or persons receiving the communication.

(C) A complete description of the content of the communication, including the complete text of any written material that was part of the communication.

(2) The executive officer shall place in the public record any report of an ex parte communication.

(e) Communications shall cease to be ex parte communications when fully disclosed and placed in the board's official record.

(f) In addition to any other applicable penalty, a board member who knowingly violates this section is subject to a civil fine, not to exceed seven thousand five hundred dollars ($7,500). Notwithstanding any law to the contrary, the court may award attorneys' fees and costs to the prevailing party.

(g) Notwithstanding Section 11425.10 of the Government Code, the ex parte communications provisions of the Administrative Procedure Act (Article 7 (commencing with Section 11430.10) of Chapter 4.5 of Part 1 of Division 3 of Title 2 of the Government Code) do not apply to proceedings of the board under this code.

663.2. (a) No board member shall make, participate in making, or in any other way attempt to use his or her official position to influence a board decision about which the member has knowingly had an ex parte communication that has not been reported pursuant to Section 663.1.

(b) In addition to any other applicable penalty, including a civil fine imposed pursuant to subdivision (f) of Section 663.1, a board member who knowingly violates this section shall be subject to a civil fine, not to exceed seven thousand five hundred dollars ($7,500). Notwithstanding any law to the contrary, the court may award attorneys' fees and costs to the prevailing party.

664. Each member of the board shall hold office for four years.
Vacancies shall be immediately filled by the Governor.

667. Each member of the board shall receive one hundred dollars ($100) for each day during which the member is engaged in the performance of official duties. The compensation of each member, except the compensation of the chairman, shall not, however, exceed in any one fiscal year the sum of four thousand dollars ($4,000).
The chairman of the board may receive compensation of not to exceed five thousand dollars ($5,000) in any one fiscal year for the performance of official duties. In addition to such compensation, each member shall be reimbursed for necessary traveling and other expenses incurred in the performance of official duties.

668. The board shall maintain its headquarters in Sacramento and shall hold meetings at such times and at such places as shall be determined by it. Five members of the board shall constitute a quorum for the purpose of transacting any business of the board. A majority affirmative vote of the total authorized membership of the board shall be necessary to adopt, amend, or repeal state policy for the reclamation of mined lands adopted pursuant to Article 4 (commencing with Section 2755) of Chapter 9 of Division 2. All meetings of the board shall be open to the public.

669. The Governor shall designate the chairman of the board from among the members of the board. The person designated as the chairman shall hold such office at the pleasure of the Governor. The board shall annually elect a vice chairman from among its members.

670. The board may appoint an executive officer who shall be exempt from civil service pursuant to subdivision (e) of Section 4 of Article XXIV of the California Constitution. The board may also employ such clerical assistance as may be necessary for the proper discharge of its duties. Neither the board nor its employees shall have or be given any powers in relation to the administration of the division.

671. The director shall have no power to amend or repeal any order, ruling, or directive of the board.

672. The board shall represent the state's interest in the development, utilization, and conservation of the mineral resources of the state and the reclamation of mined lands, as provided by law, and federal matters pertaining to mining, and shall determine, establish, and maintain an adequate surface mining and reclamation policy. The board shall also represent the state's interest in the development of geological information necessary to the understanding and utilization of the state's terrain, and seismological and geological information pertaining to earthquake and other geological hazards. General policies for the division shall be determined by the board.

673. The board shall also serve as a policy and appeals board for the purposes of Chapter 7.5 (commencing with Section 2621) of Division 2.

675. The board may provide for a statewide program of research regarding the technical phases of reclaiming mined lands which may be delegated to it by law and may accept funds from the United States or from any person to aid in carrying out the provisions of this section. The board may conduct such a program independently or by contract or in cooperation with any person, public or private organization, federal agency, or state agency, including any political subdivision of the state.

676. The board shall provide for a public information program on matters involving the state's terrain, mineral resources, mining, the reclamation of mined lands, and the seismological and geological aspects of earthquakes and other geological hazards.

677. The board shall nominate, and the director shall appoint, the State Geologist, who shall either be registered in compliance with the Geologist and Geophysicist Act at least one year from the date of appointment, or the Board of Geologists and Geophysicists may, upon the review of academic and professional experience, grant registration. The State Geologist shall possess general knowledge of mineral resources, structural geology, seismology, engineering geology, and related disciplines in science and engineering, and the reclamation of mined lands and waters. The State Geologist shall advise the director regarding technical, scientific, and engineering issues, including the scientific quality of the division's products and activities.

678. The director may authorize the State Geologist to exercise his power to appoint employees of the division in accordance with the State Civil Service Act. The director may authorize the State Geologist, or any employee of the division, to exercise any power granted to, or perform any duty imposed upon, the director by the State Civil Service Act.