

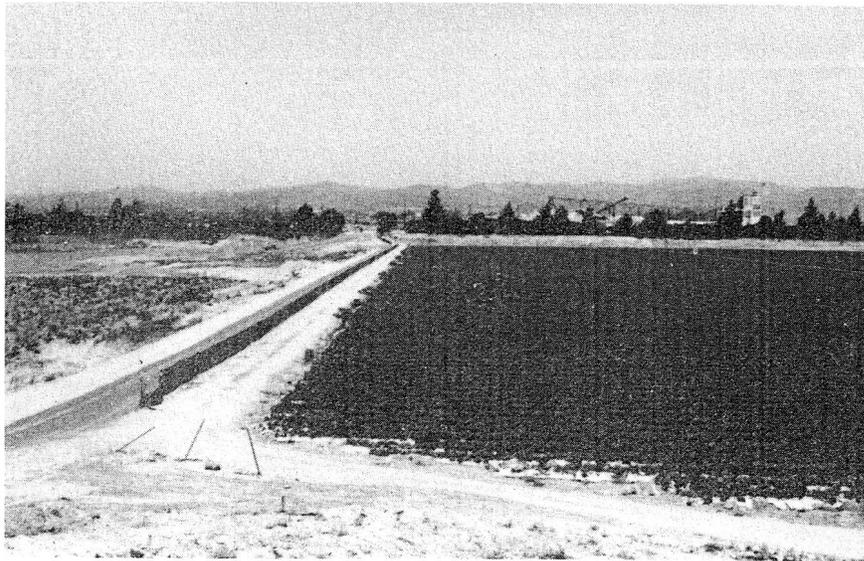
STATE OF CALIFORNIA
DEPARTMENT OF CONSERVATION

ANNUAL REPORT

of the

MINING AND GEOLOGY BOARD

1988



STATE OF CALIFORNIA
GEORGE DEUKMEJIAN
GOVERNOR

THE RESOURCES AGENCY
GORDON K. VAN VLECK
SECRETARY FOR RESOURCES

DEPARTMENT OF CONSERVATION
RANDALL M. WARD
DIRECTOR

State of California
MINING AND GEOLOGY BOARD

ANNUAL REPORT

1988

(July 1, 1987-June 30, 1988)

BOARD MEMBERS:

James A. Anderson - Chairman

Dennis Hansberger

DeWayne Holmdahl

J.H. Jack Lucas

R. Gary Miller

Jack Streblov

SPECIAL REPRESENTATIVE:

Deborah L. Herrmann



1416 9th Street, Room 1326-A
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COVER PHOTOS:

CalMat Mining operation (Saticoy) with reclaimed lands in the foreground; slope failure in the Sulphur Springs Mountain; Viceroy Resources gold mine in the California Desert.



ACKNOWLEDGEMENTS

Special thanks to James Pompy of the Division of Mines and Geology for the photos on the CalMat Mining Operation, Viceroy Gold Mine and the Colosseum Gold Mine; Roger Sherburne for the photos on seismic monitoring equipment at Parkfield; the Division of Mines and Geology's Public Information and Publications Unit for the map depicting progress of the classification-designation program; and to Ross Martin for compilation of the pie chart on the 1987 nonfuel mineral production in California.

Nancy J. Steiner
Associate Analyst

ABSTRACT

The State Mining and Geology Board has broad policy responsibilities for earth science, mineral resource conservation, mining, and geologic hazards. The Board also establishes policy that guides the implementation of the Alquist-Priolo Special Studies Zones Act, which addresses the hazards of ground rupture from active faulting, and for the Landslide Hazard Identification Act, which provides for a state-local cooperative mapping program to identify landslide-prone areas in the path of urbanization. During the 1987-88 fiscal year, the Board took a number of actions fulfilling these responsibilities.

The Board hosted a workshop in January 1988 to discuss the applicability of the Surface Mining and Reclamation Act of 1975 to federal lands, and as a result of that workshop, the Board and the Department of Conservation co-sponsored a task force to develop a more specific state-federal memorandum of understanding for more effective coordination of mining activities on federal lands.

The Board completed the designation of aggregate resources in the Fresno Production-Consumption Region and began the designation process for the Stockton/Lodi and Palm Springs Production-Consumption Regions. Three designation appeals were reviewed by the board; one of the appeals was accepted for hearing.

Four classification reports (Bakersfield Production-Consumption Region, Stockton-Lodi Production-Consumption Region, Palm Springs Production-Consumption Region, and Kerens, Flynn, and Colton Well 15' Quadrangles) were reviewed and transmitted to affected lead agencies. Four petitions for mineral land classification were heard by the Board, and three of the petitions were accepted.

The Board adopted and the Office of Administrative Law (OAL) approved two sets of regulations: 1) regulations for the designation appeals process, and 2) regulations establishing minimum criteria for lead agency mineral resource management policies. A third set of regulations for a reclamation plan appeals process, was also initiated and approved by the Board, but is pending approval by OAL.

Sixty-two maps of new and revised Special Studies Zones were reviewed and issued pursuant to the provisions of the Alquist-Priolo Special Studies Zones Act.



James A. Anderson

CHAIRMAN'S COMMENTS

This year has been a very busy and productive year for the State Mining and Geology Board. In reviewing the Board's accomplishments noted in the Abstract, some highlights come to mind on past achievements and future goals.

With the completion of the designation of the Fresno Production-Consumption Region, the Board has now designated the largest urban areas in California. In this next year, the Board will begin to focus on the designation of those remaining areas that are experiencing rapid urban growth. To that end, work has already begun on the designation of the Palm Springs and Stockton-Lodi Production-Consumption Regions.

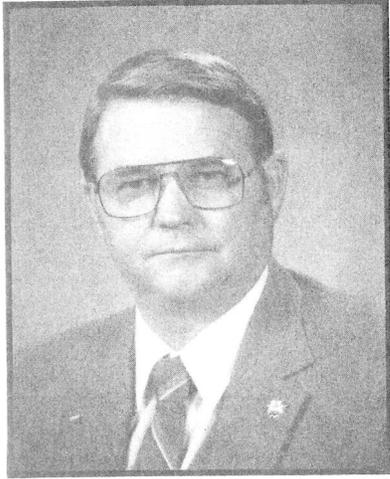
One of the highlights for the Board was a visit to Parkfield, California to review ongoing earthquake monitoring and prediction programs by the Division of Mines and Geology. It is easy to understand why there is such an international interest in the work that is being done at Parkfield, where there is an opportunity to measure earth movement and monitor its effects on structures. Also, the coordinated effort at Parkfield between the Division and the U.S. Geological Survey is an exceptional one.

A priority for the Board is working with the public, industry, and local and federal government in implementing programs that meet the needs of the people of California in regard to mineral resources. This next year the Board will be working on that priority with the increased activities of a public relations program that will provide published information describing the Board's role and responsibilities as well as educate the public about the State's geology and mineral wealth and the protection and conservation of mineral resources for future planning.

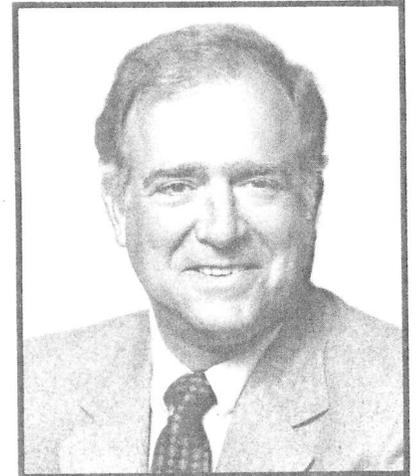
This year has also brought about a change in Board membership. Outgoing member, Arthur Darrow, who served as the Registered Geologist, Geophysicist, Civil Engineer with background and experience in seismology, was recognized for the motivation and professional guidance he provided on all the Board programs, his contribution to the development and implementation of two Alquist-Priolo Program workshops in Northern and Southern California, and his service as liaison to the Strong Motion Instrumentation Program Committee. Mr. Darrow was also recognized for his service as Chairman of the Board's Geohazards Committee and member of its Classification-Designation and Policy Committees.

The Board members and I look forward to serving the State in meeting the challenges the coming year will bring.

STATE MINING AND GEOLOGY BOARD MEMBERS



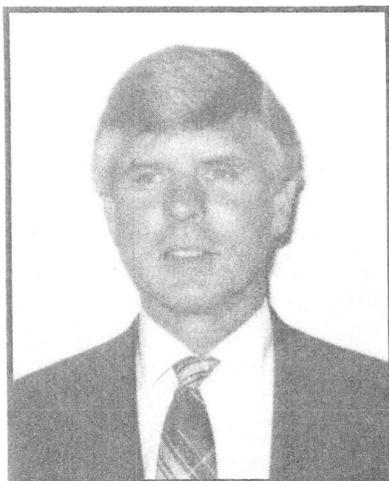
DeWayne Holmdahl



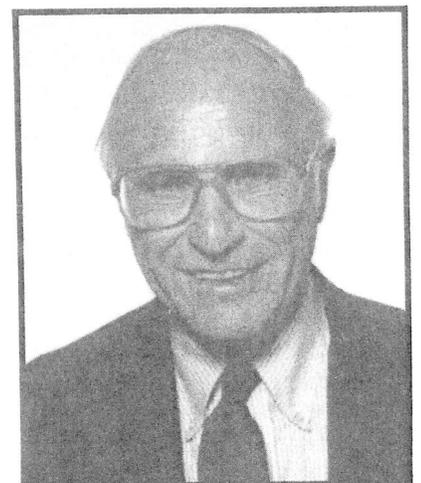
R. Gary Miller



J.H. Jack Lucas



Dennis Hansberger



Jack Streblov

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Part I.

INTRODUCTION

A. State Mining and Geology Board, Organization and Responsibilities

The State Mining and Geology Board is composed of nine members appointed by the Governor for four-year terms. By statute, the Board is comprised of individuals with specified professional backgrounds in geology, mining engineering, environmental protection, chemical engineering, urban planning, landscape architecture, mineral resource conservation, seismology, and one public member.

The Board has broad policy responsibilities under the Surface Mining and Reclamation Act of 1975 for establishing and maintaining State policy for surface mining and reclamation and for the conservation and development of mineral resources.

The Board represents the State's interest in the development of 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 policy for the State's geological survey, the Department of Conservation's Division of Mines and Geology, is established by the Board. 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.

The Board has policy responsibilities for the Alquist-Priolo Special Studies Zones Act. Under this Act, hazardous fault zones are delineated by the State Geologist. This information is provided to local government to assure that structures for human occupancy are not built across such faults. In addition, the Board establishes guidelines and priorities that enable the Department of Conservation's Division of Mines and Geology to carry out provisions of the Landslide Hazard Identification Program (AB 101, Moore, Statutes of 1983).

To enable the Board to meet its responsibilities, five permanent committees have been established. These include the Policy Committee, the Reclamation Committee, the Classification-Designation Committee, the Geohazards Committee, and the Legislation, Government and Public Relations Committee. The Board is assisted by three full-time and one half-time staff.

Part II.

MAJOR BOARD ACTIONS

A. Mined Lands Reclamation and Mineral Resource Conservation

California's Surface Mining and Reclamation Act (SMARA) is the State's solution to resolve two seemingly contradictory demands--the need for a continuing supply of mineral resources, and the assurance that significant adverse impacts of mining will be mitigated. SMARA created a program that assures the reclamation of mined lands and provides mineral information for local management of mineral resources needed for the future.

I. Summary of Reclamation Planning in California

Within the Department of Conservation's Division of Mines and Geology (DMG), there currently exists a Mined Lands Reclamation Program to carry out many of SMARA's reclamation provisions. The Board sets policy for this and other DMG programs, and is the agency responsible for certifying local surface mining and reclamation ordinances as being in compliance with State law.

Cities and counties having active mines within their jurisdiction are designated as lead agencies under SMARA. There are approximately 100 such agencies in California at the present time. Ordinances adopted by city councils and boards of supervisors that have been certified by the State Mining and Geology Board provide the regulatory framework within which mining activities are carried out. These ordinances incorporate the requirements of SMARA and reflect the policies of the Board. They may also contain additional, more restrictive requirements deemed necessary by a lead agency to ensure effective reclamation within its particular jurisdiction.

A mining operator is responsible under SMARA for the preparation and submission of a reclamation plan to the lead agency. Approval of this plan is required before mining can begin. The reclamation plan includes information on the site, the mineral commodity, the mining method, processing requirements, and the specifics of the reclamation program to be undertaken.

Who is subject to SMARA? With the exception of specified exemptions and provisions for vested operations, "...no person shall conduct surface mining operations unless a permit is obtained from, and a reclamation plan has been submitted to, and approved by, the lead agency for such operation..." Lead agencies are defined as cities, counties, and public agencies with permitting jurisdiction over a surface mining operation.

How is the Act implemented? California's approach to reclamation planning is to include the mining operator, local government, and the State as active participants in the process. This stresses a cooperative approach rather than an adversarial one, and resources and knowledge are combined to create cost-effective and environmentally sound reclamation plans. The operator's financial interest and investment are considered as well as community, regional, and statewide interests in mineral resource conservation and land-use planning.

Surface mining and reclamation ordinances adopted by lead agencies that have been certified by the Board provide the regulatory framework within which mining activities are carried out. These ordinances incorporate the requirements of SMARA and reflect the policies of the Board adopted as regulations. Lead agencies may adopt ordinances that contain additional, more restrictive requirements than those provided by SMARA or State policy, to assure effective reclamation within their particular jurisdictions.

What happens if an agency does not have a certified ordinance? In the absence of a certified lead agency surface mining and reclamation ordinance, the Board is empowered with the authority to review and approve reclamation plans to assure that the mined lands reclamation objectives of SMARA are met. Reclamation plans approved by the Board as such are not subject to modification at a later date by the lead agency with permitting jurisdiction, but may be amended by the Board. Recent amendments (Chapter 975, Statutes of 1987) require the Board to return these reclamation plans for lead agency administration once a Board-certified ordinance is in place.

What is the role of the mining operator? A mining operator is responsible under SMARA for the preparation and submission of a reclamation plan to the lead agency. Approval of this plan by the lead agency is required before mining can begin. The reclamation plan includes information on the site, the mineral commodity, and the specifics of the reclamation program to be undertaken.

Vested rights. Section 2776 of the Act exempts persons who have obtained a vested right to conduct surface mining operations prior to January 1, 1976, from the requirement to obtain a permit from the lead agency under Section 2770, but does not exempt them from the requirement to file with the lead agency for operations to be conducted after January 1, 1976. All persons who conduct surface mining operations on or after January 1, 1976, are subject to the Act's reclamation provisions, whether such operations were commenced prior to that date or not.

Record Keeping. To ensure statewide consistency for record keeping, the Board established policy requiring lead agencies to forward copies of each permit and approved reclamation plan to DMG. The Mined Land Reclamation Program is responsible for maintaining complete files of these records.

SMARA also requires that lead agencies notify the State Geologist of the filing of an application for a permit to conduct surface mining operations, which provides a mechanism for alerting the Mined Land Reclamation Program that the final reclamation plan will be forthcoming should the project be approved.

Technical Assistance. Finally, Section 2774(c) provides that "...On request of a lead agency, the State Geologist shall furnish technical assistance to assist in the review of reclamation plans." Technical assistance is provided by the State through the Reclamation Program staff, which consists of technical expertise necessary for the review of reclamation plans.

2. Certified Ordinances

Throughout the year, the Board adopted the following resolutions certifying city and county surface mining and reclamation ordinances as being in compliance with State policy governing the regulation of surface mining and reclamation in California:

- Resolution #87-20 was adopted by the Board in November 1987, certifying the City of St. Helena's Ordinance, adopted by the City on August 24, 1987.
- Resolution #88-2 was adopted by the Board in January 1988, certifying the City of Santa Barbara's Ordinance, adopted by the City on November 17, 1987.
- Resolution #88-3 was adopted by the Board in January 1988, certifying the City of Upland's Ordinances #1287 and #1415, adopted by the City on December 21, 1981 and December 21, 1987, respectively.
- Resolution #88-4 was adopted by the Board in January 1988, recertifying the County of Riverside's Ordinance, as amended and adopted by the County July 4, 1985 through July 30, 1987.
- Resolution #88-7 was adopted by the Board in March 1988, recertifying the County of Nevada's Ordinance as amended and adopted by the County March 7, 1978 through July 19, 1982.
- Resolutions #88-8 and #88-11 were adopted by the Board in March 1988 and May 1988, respectively, certifying the City of Santee's Ordinance adopted by the City through March 23, 1988, and as amended.

3. Reclamation Plan for Palmdale Sand and Gravel

At the July 30, 1987 regular Board meeting, Resolution #87-17 was adopted by the Board certifying the City of Palmdale's Surface Mining and Reclamation Ordinance #669, which had been adopted by the City of Palmdale on June 11, 1987. Pursuant to Section 2774.5(d) of the Surface Mining and Reclamation Act, which took effect January 1, 1988, reclamation plans approved by the Board are to be remanded to the lead agency upon certification of the lead agency's ordinance. Consequently, Resolution #88-5 was adopted by the Board at the January 8, 1988 regular Board meeting, remanding Palmdale Sand and Gravel Company's reclamation plan to the jurisdiction of the City of Palmdale.

4. Workshop on the Applicability of the Surface Mining and Reclamation Act to Federal Lands

On January 22, 1988, the Board hosted a workshop in Ontario, California to discuss the applicability of the Surface Mining and Reclamation Act of 1975 to federal lands. The workshop was open to the public and the approximately 100 attendees were well representative of the mining industry, local, state, and federal government agencies, and special interest groups.

The Board's interest in conducting this workshop stemmed from the 1979 Memorandum of Understanding (MOU) between the State of California

Resources Agency, the U.S. Forest Service, and the U.S. Bureau of Land Management for the purpose of assuring that the regulations governing surface mining and reclamation practice are applied as uniformly as possible throughout the State, the Board's policy that the reclamation provisions of SMARA and Board regulations apply to federal lands (formalized by Resolution #81-5 in 1981) and from the recent U.S. Supreme Court decision, California Coastal Commission et al. v. Granite Rock Company, that appeared to uphold states' rights to impose environmental regulations on federal lands, where there is no conflicting federal law or regulation.

Workshop guest speakers, which included representatives of federal, state, and local government and the mining industry, addressed the impact of the recent Supreme Court decision to surface mining and reclamation practices in California; specifically the interrelationship between BLM and USFS and state and local requirements. Further discussion centered on state-federal-local relations with regard to mining and reclamation practices, the effectiveness of the existing MOU, and possible means of assuring state-federal coordination of decisions affecting California's mineral lands.

At the close of the workshop, participants agreed that the existing MOU should be re-examined and possibly revised to minimize unnecessary duplication of regulation by local, state and federal agencies, and to provide a standard for local-federal agreements.

5. MOU Task Force

As a result of the January 22, 1988, workshop on the applicability of SMARA to federal lands sponsored by the Board, the Department of Conservation and the Board jointly formed a Task Force to review the existing MOU between the State, the BLM and the USFS and to develop recommendations for more effective coordination of mining activities on federal lands.

The 14 MOU Task Force members were selected through an intensive nomination process, and are representative of the affected state, federal and local government agencies, the mining industry, environmental organizations, and the public. The Task Force is co-chaired by the State Mining and Geology Board and the Department of Conservation. To assure management support, a smaller oversight committee representative of high-level officers from the Department of Conservation, State Mining and Geology Board, BLM and USFS was also formed.

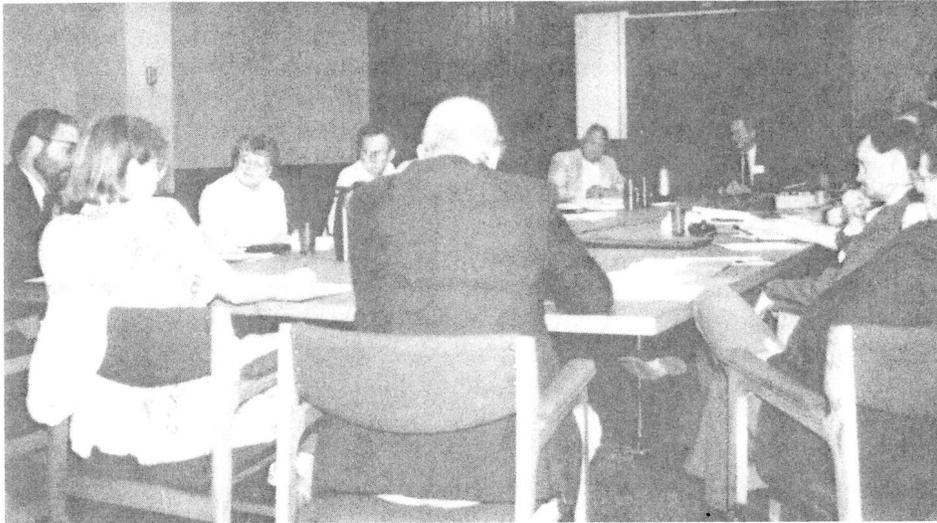
It was agreed that the overriding consideration of the MOU Task Force would be to recognize the significant contribution to society's needs by the minerals industry and assure continued development of important mineral deposits on federal lands, while assuring that the environmental impacts are consistently met statewide, with the minimum duplication of effort.

The specific assignments of the MOU Task Force are to:

- take an exhaustive look at the problem of state-federal-local coordination of regulatory activities associated with mining on federal lands, and in particular, on developing a more specific MOU at the state-federal level;

- solicit input from local agencies, industry, environmental groups, and district offices of the U.S. Forest Service and Bureau of Land Management for purposes of developing a model MOU for use at the local level between the counties and the district offices of each of these agencies; and
- develop a means to assure effective implementation of these MOU's in the future.

The MOU Task Force held its first meeting on July 29, 1988.



First MOU Task Force Meeting, chaired by Chairman James Anderson.



MOU Task Force Members, from left to right: John Miles, Joseph Ziony, Joe Bellandi, and Board Member DeWayne Holmdahl.

6. Reclamation Plan Appeals Process

Recent amendments to SMARA (AB 747, Sher, Chapter 975, Statutes of 1987) provided a "window" period for vested mining operators to file reclamation plans for approval by lead agencies in compliance with reclamation planning provisions of SMARA. The amendments also created an appeals process to assure a speedy review and action by lead agencies based on the merits of the reclamation plan's compliance with specified provisions.

The Board may decline to hear an appeal if it determines that the appeal is not within the jurisdiction of the Board or if the appeal raises no substantial issues related to the lead agency's review of reclamation plans pursuant to the provisions of Section 2770(c). The Board is required to hear appeals that are not so declined. In hearing an appeal, the Board must determine whether or not the reclamation plan substantially meets the requirements of Section 2772 and 2273, and the lead agency surface mining and reclamation ordinance.

The Board initiated the process of adopting regulations to establish procedures for processing such appeals filed with the Board. After extensive public review culminating in a public hearing held in March 1988, the Board adopted these regulations May 13, 1988. In addition to establishing a filing, review, and hearing process, the regulations interpret "substantial compliance"...The regulations are pending OAL review and approval.

7. Lead Agency Determination - Santa Maria Aggregates

At the May 13, 1988 regular Board business meeting, the Board moved to designate Santa Barbara County as the lead agency for mining activities associated with the proposed Santa Maria Aggregate project in Santa Barbara County. The County of Santa Barbara had formally requested a lead agency determination, pursuant to SMARA Section 2771, for the mining activities associated with a cogeneration facility as between the County of Santa Barbara or the State Energy Resources Conservation and Development Commission (CEC).

In April 1986 the Santa Maria Aggregates Corporation (SMAC) submitted an application for a Conditional Use Permit and Reclamation Plan to the County of Santa Barbara for expansion of an existing diatomite surface mine and processing plant located near Santa Maria, California. According to the application, the mine would produce a pozzolanic material intended for the building/construction and related markets as a substitute for cement in making concrete. Waste heat produced from the mining activity would be used to generate steam to produce cogenerated electric power. In April 1987 SMAC withdrew the application for the Conditional Use Permit and Reclamation Plan when the State Energy Resources Conservation and Development Commission (CEC) staff concluded, upon review of the project, that the plant's electrical generating capacity would exceed 50 MW thereby placing the project under the CEC's jurisdiction. The County of Santa Barbara contended that the CEC had jurisdiction over the power plant and transmission line, but that local permit jurisdiction existed for the expansion of mining activities, including waste disposal, pozzolan processing, transportation, loading and storage facilities, water lines, and eventual reclamation of the site.

After hearing testimony by the project proponent, CEC staff, and County of Santa Barbara staff, the Board moved that Santa Barbara County be designated as lead agency for the Santa Maria Aggregate project for the following reasons: (1) mining would be a significant activity of the project, (2) land uses would be better handled by a general plan local agency, and (3) Santa Barbara County has recent experience working with the CEC on another cogeneration project of a similar size.

8. Summary of Classification-Designation Program

California is one of the nation's leading mining states in terms of both value and diversity of minerals produced--approximately 800 active mines and quarries produce about \$2 billion worth of nonfuel minerals annually.

In the early 1970's, the Department of Conservation's Division of Mines and Geology (DMG) estimated that California would face a \$17 billion loss of mineral resources by the year 2000 if present land uses continued. This projected loss represents almost nine years of the State's current mineral production.

California is faced with increasingly difficult land use decisions. Mining is not compatible with most other land uses. Conflicts between homeowners and quarry operators are common at public hearings. In the public view, other land resources such as agricultural lands, timber stands, and sensitive ecological or scenic areas can be more valuable than the underlying mineral deposits. Competition for land use priorities is intense. Unfortunately, many land use decisions are made without considering whether mineral resources are present. Mineral resources thus lost are rarely located or recovered later.

In an effort to remedy this problem, SMARA provides for a mineral lands inventory process termed "classification-designation", which jointly involves State and local government. Information on the location of important mineral deposits is developed by the DMG through the process of mineral land classification. This information is used by the Board in designating those deposits that are of economic significance to a region, the State, or the nation. Local government uses this information in developing mineral resource management policies and in making land-use decisions to assure the conservation and development of these resources.

During the first phase of this program, classification, the State Geologist is responsible for preparing a geologic inventory of selected mineral commodities within a defined study region. Major objectives of a classification report include: (1) identifying the market area of the commodity (a production-consumption region); (2) projecting the future (50-year) needs for the commodity within the study region; and (3) geologically classifying the lands within the region as to the presence or absence of the commodity.

The State Geologist classifies mineral lands solely on the basis of geologic factors. Existing land-use, by statute, is not considered. Classification of an area as a Mineral Resource Zone-2 (MRZ-2) indicates the existence of a deposit that meets certain criteria for value and marketability. The classification report also describes other categories of mineral resource zones -- MRZ-1, 3,

and 4. The first two of these categories are used to indicate if an area contains no resources (MRZ-1) or contains potential but presently unproven resources (MRZ-3). Areas where it is not possible to assign any of these categories are classified MRZ-4.

In many regions, large portions of the areas classified as MRZ-2 are already committed to various urban uses, which limit access to the underlying resources. As an aid to local planning agencies, classification reports prepared for metropolitan areas also identify MRZ-2 quality deposits, or portions of these deposits, that have not been preempted by incompatible land uses such as urbanization. These nonurbanized areas, called resource sectors, are important because they contain resources that remain potentially available for future use. The identification of resource sectors also facilitates estimating the volume of aggregate material that is available in the production-consumption (P-C) region. Resource sectors are typically considered for designation by the Board.

Once the classification report has been completed, the Board may choose to proceed with the second step in SMARA's mineral lands identification process -- designation of those deposits that are of regional or statewide significance. In contrast to classification, which inventories mineral deposits without regard to land use, the purpose of designation is to identify those deposits that are of prime importance in meeting the future needs of the study region and that remain available from a land use perspective.

The first mineral commodity selected by the Board for classification by the State Geologist in urban and urbanizing areas was construction aggregate -- sand, gravel, and crushed rock. While its importance is often overlooked, sand and gravel is an essential commodity in society. As construction materials, sand and gravel are key components of products such as Portland cement concrete, asphaltic concrete, railroad ballast, stucco, road base, and fill. Aggregate normally provides 80 to 100 percent of the material volume in these products. Portland cement concrete, in turn, is used in a number of building materials such as concrete blocks and pipes, foundation pilings, precast concrete beams, and tilt-up concrete walls. In total, aggregate as a basic construction material has ripple effects throughout the economy. The availability of aggregate is essential, for example, to the construction industry. Developers, building and highway contractors, cement manufacturers, asphalt producers, construction workers, and truck drivers are dependent, either directly or indirectly, on a ready supply of reasonably priced construction aggregate. Therefore, the availability of aggregate deposits and their proximity to markets are critical factors in the strength of the State's economy.

With the passage of SB 1300 in 1979, the State also initiated mineral land classification studies in the highly mineralized Sierra Nevada and the California Desert Conservation Area, where focus is on the potential for minerals other than construction aggregate in more rural areas of the State.

9. Mapping Priorities for Urban and Nonurban Classification

The Board adopted, by Resolution #87-3 in January 1987, a schedule of priorities for the classification of mineral lands in urban and nonurban areas of

the State. The Board recognized the necessity of updating the schedule to reflect current needs and statewide urbanizing trends, as well as the necessity of initiating mapping of industrial minerals while balancing the need to complete mapping of construction aggregate commodities.

10. Completion of Urban Classification Reports

As reported in the 1987 State Mining and Geology Board Annual Report, the Yuba City-Marysville P-C Region urban classification report was accepted by the Board in July 1987 and transmitted to affected lead agencies. Urban classification reports accepted by the Board this year are:

a. Bakersfield Production-Consumption Region

The Board accepted, in September 1987, an urban classification report for the Bakersfield P-C Region, and transmitted it to affected lead agencies (Kern County and the Cities of Bakersfield, Arvin, Delano, Maricopa, McFarland, Shafter, Taft, and Wasco) in October 1987. The P-C region covers 1,806 square miles and includes the large urbanized portions of western Kern County in the southern end of the San Joaquin Valley. Although substantial portions of this area are agricultural, urbanization in the vicinity of Bakersfield is occurring at a rapid pace.

The major findings of the report entitled, "Mineral Land Classification: Aggregate Materials in the Bakersfield Production-Consumption Region", are:

- o Within the Bakersfield P-C Region, seven resource areas containing 10 sectors, divided into 54 sub-sectors, have been identified. They contain nearly 5.3 billion tons of aggregate resources.
- o Based upon available production data and population projections, the Bakersfield P-C Region will need 201 million tons of aggregate during the next 50 years. Of this projected demand, approximately 53 percent (107 million tons) must be suitable for Portland cement concrete. At the end of 1984, approximately 212.4 million tons of aggregate reserves existed within the P-C region. This exceeds the projected demand. If a major earthquake were to affect the P-C region and necessitate reconstruction, the depletion date of existing reserves will occur sooner.

b. Palm Springs Production-Consumption Region

The Board accepted, in January 1988, an urban classification report for the Palm Springs P-C Region. The P-C region encompasses the entire metropolitan areas of Palm Springs, Desert Hot Springs, La Quinta, Palm Desert, Rancho Mirage, Indian Wells, Indio, and Coachella and surrounding areas anticipated by the Office of Planning and Research and/or the local cities and the County of Riverside to urbanize in the next 10 to 30 years; outlying communities such as North Palm Springs, Desert Haven, Sky Valley, Rimlon, Cathedral City, Thousand Palms, Bermuda Dunes, and Thermal; rural areas not anticipated to urbanize but which are sparsely populated and consume aggregate from the production areas of the region;

Progress of Classification-Designation Program

Index map of California, showing location and status of Aggregate Production-Consumption Regions being classified and/or designated in the Urban SMARA Program as of June 30, 1988.

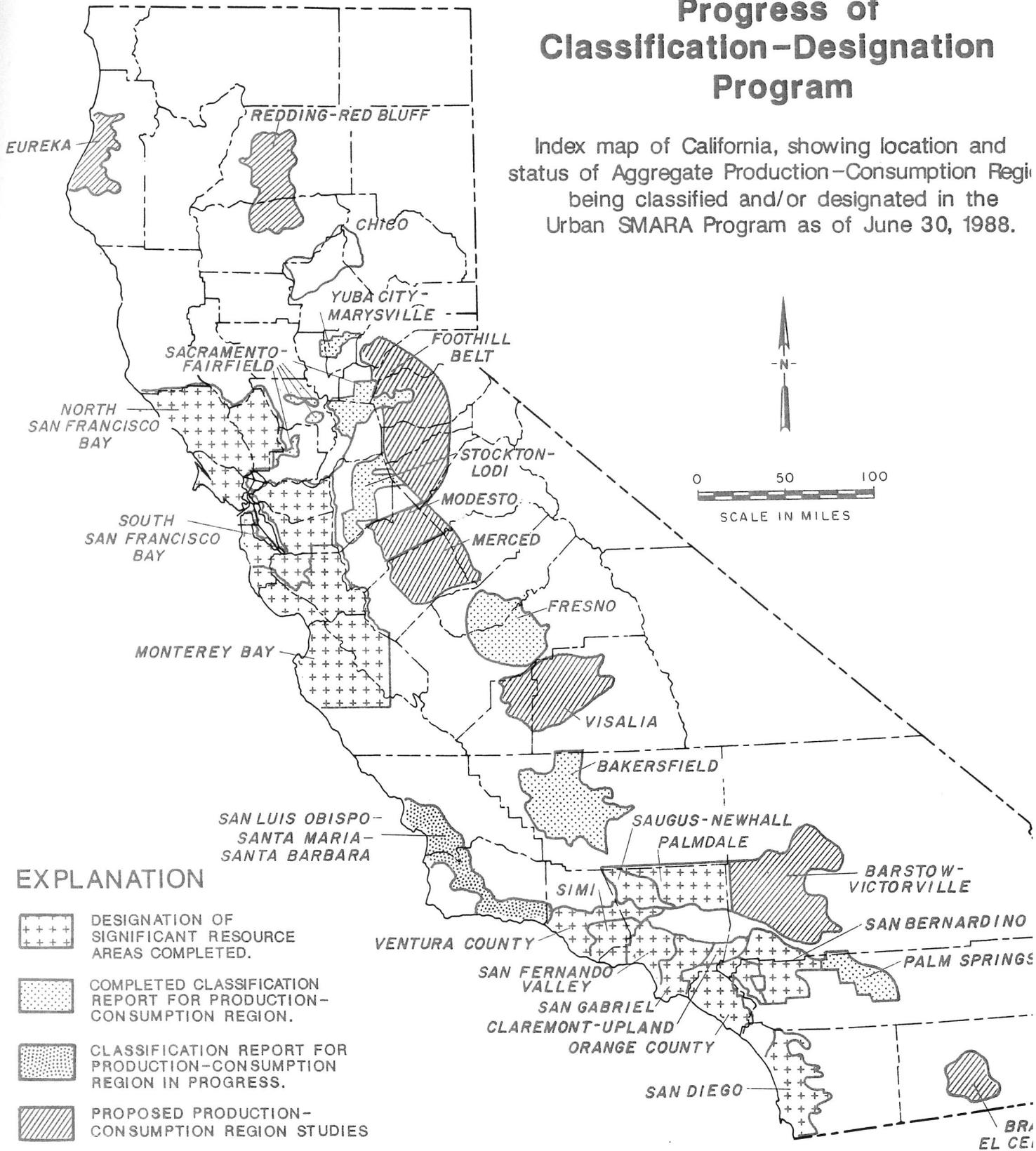


Figure 1. Status of the City SMARA Classification - Designation Program, June 30, 1988.

and the four current production areas and a fifth inactive production area north of Desert Hot Springs.

The major findings of the report entitled, "Mineral Land Classification: Aggregate Materials in the Palm Springs Production-Consumption Region", are:

- o Within the Palm Springs P-C Region, 8 sectors (A-H) have been identified that contain over 3.2 billion tons of aggregate resources.
- o Based on available production data and population projections, the Palm Springs P-C Region will need 156.1 million tons of aggregate during the next 50 years. Of this projected demand, approximately 54 percent (84.4 million tons) must be suitable for Portland cement concrete. The approximately 67 million tons of aggregate reserves calculated to exist within the P-C Region amount to 43 percent of the projected demand for all aggregate over the next 50 years. Unless new resources are permitted for mining, or alternative resources are utilized, existing reserves will be depleted during the year 2011. If a major earthquake was to strike the P-C region and necessitate reconstruction, the depletion of existing reserves would occur much sooner.

The Board transmitted this report to the County of Riverside and the cities of Palm Springs, Indio, Indian Wells, Desert Hot Springs, Coachella, Palm Desert, Rancho Mirage, and La Quinta in February 1988.

c. Stockton-Lodi Production-Consumption Region

The Board accepted, in May 1988, an urban classification report for the Stockton-Lodi P-C Region. The P-C region covers 430 square miles and includes the large urbanizing portions of San Joaquin County. A copy of the report was transmitted to the counties of San Joaquin and Stanislaus and the cities of Stockton, Lodi, Manteca, and Tracy in May 1988.

The major findings of the report entitled, "Mineral Land Classification of the Portland Cement Concrete Aggregate in the Stockton-Lodi Production-Consumption Region", are:

- o Within the Stockton-Lodi Production-Consumption Region, seven resource sectors were identified as containing significant resources of P.C.C.-grade aggregate. These areas were determined to contain approximately 584.2 million tons of P.C.C.-grade aggregate resources and 78.9 million tons of reserves. One of these resource areas is identified as a significant deposit of P.C.C.-grade sand, containing 90.2 million tons of sand resources (reserves are proprietary).
- o Based upon available production data and population projections, the Stockton-Lodi P-C Region will need 281 million tons of aggregate during the next 50 years. Of this projected demand, approximately 40 percent (113 million tons) must be suitable for Portland cement concrete. The 79 million tons of aggregate reserves calculated to

exist within the P-C region represent 28 percent of the projected demand for all aggregate over the next 50 years. Unless new resources are permitted for mining, or alternative resources are utilized, existing reserves will be depleted by the year 2004. If a major earthquake, or similar unforeseen catastrophic event, strikes the P-C region and necessitates reconstruction, existing reserves would be depleted sooner.

This region was selected for designation as Priority I in November 1987; the environmental review process for the designation project was initiated shortly after transmittal of the report in May 1988.

11. Completion of Nonurban Classification Reports

Mineral inventory studies continue in the California Desert Conservation Area (CDCA). The CDCA was given high priority for classification by the Board because of its known mineral wealth and because the region is subject to on-going federal planning and land use decisions that could conflict with the development of important mineral resources.

a. Kerens, Flynn, and Colton Well 15-Minute Quadrangles, San Bernardino County

The Board accepted and formally transmitted, in March 1988, a nonurban classification report for the Kerens, Flynn, and Colton Well 15-Minute Quadrangles located in the CDCA. Construction sand, gravel, and common rock resources were not considered in this report. Major findings of the study are:

- o A regional scale fault system forming the structural boundary along the east margin of the Providence Mountains is classified as containing inferred resources of precious and base metals (MRZ-2b). The deposits were formed by hydrothermal processes and are hosted in cavity-filling quartz veins in granitoid rock and as replacement bodies in carbonate strata. Four other areas in the Providence, Granite, and Clipper Mountains and the Colton Hills are classified as likely to contain undiscovered mineral deposits of hydrothermal origin (MRZ-3a).
- o Four areas in the Providence and Granite Mountains are classified as containing either inferred resources or demonstrated subeconomic resources of iron ore formed by contact metasomatic processes (MRZ-2b). These include the areas surrounding the Vulcan mine-Burro prospects, the Cornfield Springs Consolidated mine, the Black Jack mine, and the Iron Victory mine. Four other areas located in the Providence, Granite, and Clipper Mountains and the Colton Hills are classified as likely to contain undiscovered mineral deposits of the contact metasomatic origin (MRZ-3a).
- o Part of the Kelso Dune Field is classified MRZ-2a for industrial sand resources. About 15 billion tons of marginally economic reserves have been identified. Five areas in the Providence, Old Dad, and Bristol

1987 NONFUEL MINERAL PRODUCTION IN CALIFORNIA

(Value in Thousands of Dollars)

State total 1987: \$2,551,285 (est.)
(Value in thousands)

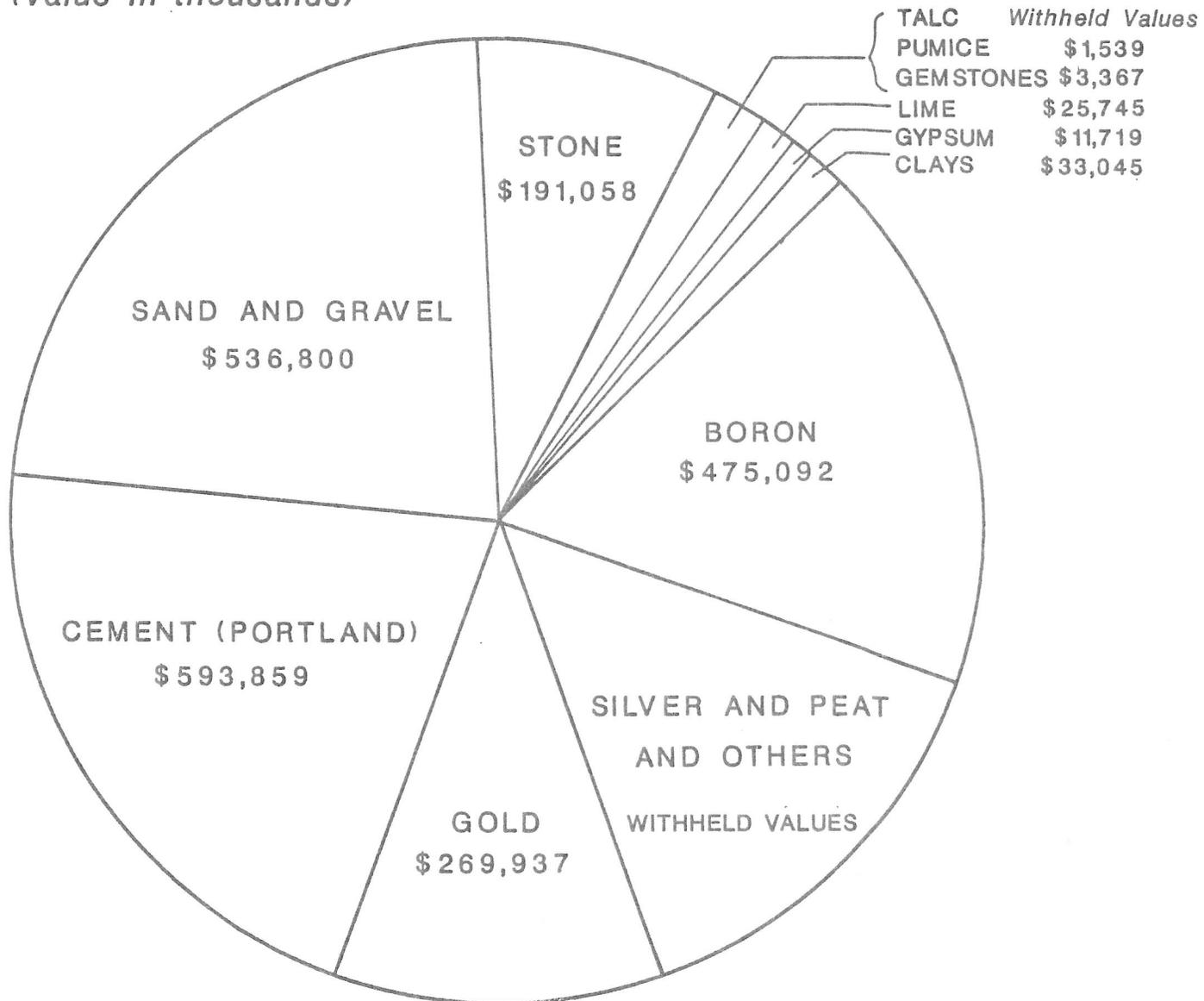


Figure 2. Combined value of asbestos, calcium chloride, cement (masonry), clays (fire clays), copper, diatomite, feldspar, iron ore, lead, magnesium compounds, molybdenum, perlite, potassium salts, rare-earth concentrates, salt, sodium carbonates, sodium sulphate, tungsten ore and concentrate, wollastonite, and withheld values.

Source: U.S. Bureau of Mines Minerals Yearbook 1987, Volume II.

Mountains are classified as likely to contain significant industrial mineral deposits (MRZ-3a). These include large areas within which thick sections of Paleozoic carbonate strata (limestone, dolomite, and marble) are exposed and less extensive areas which could contain economic deposits of quartzite, zeolites and perlite. The areas are classified MRZ-3a because no production has occurred in the project area and because adequate information regarding grade of potential resources is lacking.

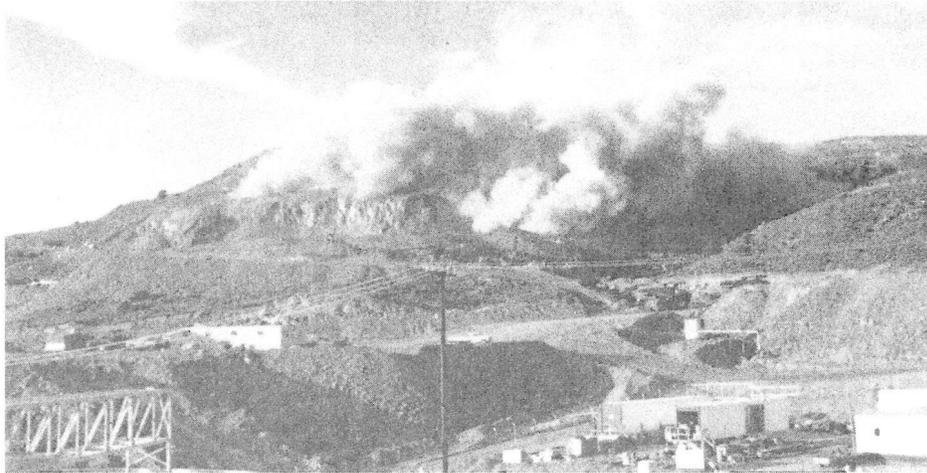


Viceroy Resources
gold deposit in the
Castle Mountains.

12. Site Visit of the Viceroy Resources Hart Gold Mine and the Colosseum Gold Mine in the California Desert

On November 12, 1988, the Board toured the Viceroy Resources Hart Gold Mine and the Colosseum Gold Mine located in the California Desert. Having broad policy responsibilities under SMARA for the conservation and development of mineral resources in California, the Board's interest in viewing these mining operations stemmed from the dramatic increase in desert gold production over the last five years as well as recent attempts through Federal legislation to designate much of the California Desert as a protected wilderness area, which could result in permanently precluding mining and the loss of tremendous potential for gold production. Both the Colosseum and Hart mountain deposits had been classified MRZ-2 by the Country SMARA staff. Both deposits are situated in what was proposed as the East Mojave National Park under S-7, Senator Cranson's wilderness legislation.

The Viceroy Resources gold deposit is located in the Castle Mountains, site of the old Hart gold mine district. Gold was first discovered in the district during the early part of this century and, since then, has been produced intermittently. The area experienced renewed exploration in the 1980's, resulting in the discovery of new ore reserves. Viceroy Resources announced that the total mineable reserves are approximately 25,940,000 tons of ore, average grade of .055 gold ounces per ton.



Blasting at the colosseum Gold Mine,
Clark Mountain Range.

The Colosseum Mine, situated in the Clark Mountain Range, San Bernardino County, has been a historic gold producing area. In this past decade, Amselco Exploration performed considerable drilling and evaluation of the deposit and filed for permits to bring the deposit into production. The deposit was later turned over to Australian interests, the current operators who are now bringing the deposit into production.

13. Classification Reports Prepared in Response to Petitions

Mineral deposits threatened by incompatible land uses that may prevent mining may be brought to the Board's attention by petition. To qualify for a petition, the subject deposit(s) must meet a certain economic threshold and be faced with an imminent land-use threat related to urbanization.

As with all other classification reports, lead agencies are required by SMARA to incorporate this information into the local general planning process.

In May 1988, the Board accepted three petitions for mineral land classification, and declined to accept another petition because of insufficient data. Those accepted included the following:

a. Hillsdale Rock Company, Inc.

The petition was accepted from Hillsdale Rock Company, Inc., for classification of limestone deposits at Pearce Quarry located in San Benito County.

The land use threat to these deposits was cited as access to and from the quarry.

Pearce Quarry lies within the previously defined Monterey Bay Production-Consumption Region (DMG Special Report 146 Part IV). Acceptance for classification was based on data showing that limestone had been quarried at this site in the past. Also, present value and reserve estimates indicate that the site contains reserves which greatly exceed the minimum threshold value necessary for classification.

b. H. G. Fenton Materials Company

The petition was accepted from H. G. Fenton Materials Company for classification of granite deposits, located in the Merriam Mountains in San Diego County. The company stated that these deposits would be mined to market a variety of aggregate products, including Portland cement concrete (P.C.C.) grade materials. This area adjoins previously classified and designated deposits in the Western San Diego County Production-Consumption Region.

The land-use threat to these deposits was cited as potential encroachment by a country club and rural residential construction, which could prematurely result in loss of the mineral resource.

Data indicated that due to the geologic setting of the area, the current MRZ-3 status of the area, the proximity of a proven producer of P.C.C.-grade materials, and reserves in excess of the minimum threshold value for classification, the property would likely be classified MRZ-2 for construction aggregate.

c. A. J. Raisch Paving Company

The petition was accepted from the A. J. Raisch Company for classification of the San Bruno Canyon greenstone deposit located in Santa Clara County. The company intends to quarry greenstone deposits of the Franciscan Complex and produce crushed stone for use as construction aggregate. This area is within the previously defined Monterey Bay Production-Consumption Region.

Although the area surrounding the deposits is sparsely developed at the present time, a planned development project poses a land-use threat.

Data collected on the deposit indicated that it is capable of yielding materials suitable for a variety of aggregate deposits. The data also indicated that the deposit contains reserves which greatly exceed the minimum threshold value necessary for classification.

14. Designation of Fresno

Designation of regionally significant construction aggregate deposits in the Fresno Production-Consumption Region, begun by the Board in May 1987 with a tour of the P-C region and a workshop held in Fresno, was completed in July 1988. In July 1986, the Board had determined that the Fresno P-C region, already defined by mineral land classification, would be the next area of designation due to rapid urbanization occurring in the region.

A public hearing was held on January 8, 1988 in Fresno to receive comments on the draft Environmental Impact Report (EIR) for the proposed action following a public review period, and Resolution 88-9 was passed by the Board in March 1988 certifying the Final EIR. The Classification-Designation Committee met to prepare recommendations to the full Board for designation of aggregate resources in the Fresno P-C region and proposed designation regulations were released in March 1988 for public comment. A public hearing was held May 13, 1988 in Fresno to accept testimony and comments on the proposed designation regulations.

Throughout the designation proceedings, which is a formal rulemaking process, Board members met with citizens, industry groups, and state and local government officials to receive input and respond to inquiries in an attempt to understand the concerns of all interested parties towards development of an informed decision. The designation process was completed at the Board's July 8, 1988 regular business meeting by formal adoption of the proposed designation regulations and Resolution 88-13, adopting the environmental findings for the designation of the Fresno P-C region.

15. Designation of Stockton-Lodi

In November 1987, the Board determined that the Stockton-Lodi P-C Region would be the next priority area for designation action. On May 26, 1988 the Classification-Designation Committee held an informational workshop in Stockton to initiate the designation process.

The P-C region covers 430 square miles and includes the large urbanizing portions of San Joaquin County. Within the P-C region, seven resource sectors were identified as containing significant resources of Portland cement concrete (P.C.C.) grade aggregate. These areas were determined to contain approximately 584.2 million tons of P.C.C.-grade aggregate resources and 78.9 million tons of reserves. One of these resource areas is identified as a significant deposit of P.C.C.-grade sand, containing 90.2 million tons of sand resources (reserves are proprietary).

Based upon available production data and population projections, the Stockton-Lodi P-C Region will need 281 million tons of aggregate during the next 50 years. Of this projected demand, approximately 40 percent (113 million tons) must be suitable for Portland cement concrete. The 79 million tons of aggregate reserves calculated to exist within the P-C region represent 28 percent of the projected demand for all aggregate over the next 50 years. Unless new resources are permitted for mining, or alternative resources are

utilized, existing reserves will be depleted by the year 2004. If a major earthquake, or similar unforeseen catastrophic event, strikes the P-C region and necessitates reconstruction, existing reserves would be depleted sooner.

16. Designation of Palm Springs

In November 1987, the Board determined that designation of the Palm Springs P-C Region would follow the Stockton-Lodi P.C. Region designation. On April 15, 1988, the Classification-Designation Committee held an informational workshop in Indio to initiate the designation process for the Palm Springs P-C Region.

The Palm Springs P-C Region covers an area of 629 square miles, of which 33.8 square miles (5.4% of the total area) were classified MRZ-2. Only 28.2 square miles (4.5% of the total area) have been sectorized as having current land uses which do not preclude mining. About 1.3 square miles (0.2% of the total area) of the sectorized areas are currently under mining permits. Within the P-C region, 8 sectors have been identified that contain over 3.2 billion tons of aggregate resources.

Based on available production data and population projections, the Palm Springs P-C Region will need 156.1 million tons of aggregate during the next 50 years. Of this projected demand, approximately 54 percent (84.4 million tons) must be suitable for Portland cement concrete. The approximately 67 million tons of aggregate reserves calculated to exist within the P-C Region amount to 43 percent of the projected demand for all aggregate over the next 50 years. Unless new resources are permitted for mining, or alternative resources are utilized, existing reserves will be depleted by the year 2011.

17. Local Agency Use of Classification-Designation Reports

Once a classification or designation report has been received by local lead agencies (cities and counties), SMARA requires that these agencies establish mineral resource management policies, to be incorporated into their general plans, that: (1) recognize the mineral information provided by the State; (2) assist in the management of land use that affects areas of statewide or regional significance (designated areas); and (3) emphasize the conservation and development of identified mineral deposits.

While SMARA contains a specific mandate requiring development of mineral resource management policies that will implement the mineral resource conservation objectives of SMARA, it leaves little guidance as to how these policies should be structured. To address this issue, the Board, in May 1985, adopted interim criteria to assist lead agencies in the development of mineral resource management policies.

Resolution #86-1, adopted in January 1986, amended Resolution #85-15 to increase the number of implementation measures that ought to be utilized by lead agencies to effectively carry out the mineral resource conservation provisions of SMARA. The Board promulgated regulations to formalize these criteria, and subsequently adopted them on July 8, 1988.

Information available in classification and designation reports is being used with increasing frequency by local agencies in planning studies and permit decisions. For example, during the past year, mineral resource information developed by the classification-designation program was used in at least 20 local agency environmental documents. These documents are monitored carefully by the Department of Conservation to insure that factual information on classified and/or designated areas is brought before local decision-makers.

Information on mineral resources was included for project decisions in the Cities of Azusa, Benicia, Fillmore, Folsom, Fremont, Los Altos Hills, Oakland, Oxnard, Sacramento, San Diego, San Jose, and Ventura, as well as in the Counties of Alameda, El Dorado, Nevada, Placer, Riverside, San Diego, San Bernardino, and Sonoma.

18. Appeals

An applicant whose request for a permit to conduct surface mining operations in an area of statewide or regional significance has been denied by a lead agency or any person who is aggrieved by the granting of a permit to conduct surface mining operations in an area of statewide or regional significance, may appeal to the Board. The board may decline to hear an appeal if no substantial issues are raised or if the subject of the appeal is not within the jurisdiction of the Board (i.e., the area has not been designated). If the Board agrees to hear an appeal, a public hearing is held within 30 days of the filing of the appeal, or such time as agreed upon by the Board and the person filing the appeal, in the jurisdiction of the lead agency which processed the original application.

Also any person whose reclamation plan for a vested rights surface mining operation has been reviewed and denied by a city or county (lead agency) under circumstances specified by Public Resources Code, Section 2770, can appeal to the Board.

a. Appeal on Behalf of J. B. Unlimited, Inc., Concerning County of San Diego's Denial of a Permit for Sand Mining

A designation appeal was accepted by the Board and publicly heard in San Diego on November 13, 1987, regarding the County of San Diego's denial of J. B. Unlimited, Inc.'s application for a permit for sand mining in the San Luis Rey River.

The Board's role in reviewing the administrative record and hearing the appeal was to determine if the lead agency's (County of San Diego) decision was supported by evidence in light of the whole record. At the conclusion of the hearing, the Board determined (Resolution 88-1) that there was not sufficient evidence in the administrative record to support the lead agency's conclusion, and that the matter was remanded to San Diego County for rehearing.

The Board's determination was based on findings that there was no evidence in the record to support the County's claim that the project would produce significant unmitigable environmental impacts upon the riparian habitat of the San Luis Rey River, the Least Bell's Vireo, or Native

American Religious Concerns. Also, the area had been previously designated by the Board as being of regional significance, and the County failed to show evidence in the record to support their conclusion that there were no socioeconomic benefits that outweighed the expected environmental impacts of the project, and that the decision was in accordance with their MRMP. Designation requires that lead agencies consider the importance of the designated minerals to the region as a whole in making any land use decisions, not just to the lead agency's jurisdiction.

b. Appeal on Behalf of the Lake Combie Association Concerning Reclamation Plan Approval for Chevreaux Sand and Gravel Mining of Lake Combie and the Bear River

In December 1987, an appeal regarding Nevada County's approval of a reclamation plan for Chevreaux Sand and Gravel Company for mining Lake Combie and the Bear River was denied by the Board.

The appeal was filed by P. Scott Browne on behalf of the Lake Combie Association. The Association's objection to the approval of the plan was cited as their concern that mining would occur indefinitely in an environmentally sensitive area without a proper environmental study and protections against significant adverse impacts on the environment. Under SMARA, the Board's authority to hear appeals is limited to those regarding permits to conduct surface mining operations granted or denied by a lead agency for a project located within a designated mineral resource area or reclamation plans for a vested rights surface mining operation reviewed and denied by a local lead agency. Since neither of these circumstances applied, the Board declined to accept the appeal.

c. Appeal on Behalf of Oro Fino Gold Mining Company Concerning Denial by El Dorado County for a Permit for Mineral Exploration

In April 1988, an appeal of the denial by El Dorado County for a permit to allow a mineral exploration operation by Oro Fino Gold Mining Company was filed with the Board.

The project area contained the Vandalia and Big Canyon mines along with the Comet lode to the south, and had been previously classified, Open File Report 83-29 SAC. Although the area had been classified, it had not been designated by the Board as being of regional or statewide significance. Under SMARA, the Board is limited to hearing appeals in the granting or denying of a permit for surface mining only in areas that have been designated by the Board as being of regional or statewide significance; therefore, the Board declined to accept the appeal.

B. Geohazards

1. Summary of Board Responsibilities for Geohazards in California

California's propensity for geologic hazards -- earthquakes, landslides, volcanism -- underscores the importance of understanding these phenomena and

their potential effects upon our society. In 1973, the Division of Mines and Geology estimated that the cost of these hazards from 1970 to 2000, if current land-use practices continue, would amount to \$38 billion. To foster a better understanding of these hazards, the Board represents the State's interest in developing and disseminating related geologic information through the State's geologic survey -- the Division of Mines and Geology (DMG).

the Board is also charged with more specific responsibilities under such laws as the Alquist-Priolo Special Studies Act and the recently enacted Landslide Hazard Identification Act.



This station, located at Parkfield, has a strong-motion recording instrument, or accelerograph, which is in a continuous standby mode until it is triggered by the onset of ground shaking in an earthquake. The instrument is mounted on a concrete pad and enclosed in a protective fiberglass housing. A small solar panel is mounted on the roof of the housing to provide power for the instrument, and an antenna to receive a WWVB time signal is attached to the inside of the housing.

2. The Alquist-Priolo Special Studies Zones Act

The Alquist-Priolo Special Studies Zones Act provides for the mapping of active faults by DMG under policies established by the Board. Maps of these faults -- Special Studies Zones -- are provided to local government for their land-use planning and decision making. The Act prohibits construction of structures for human occupancy, as defined, across the trace of an active fault.

Sixty-two (62) official maps (listed below) of new and revised Special Studies Zones were issued pursuant to the provisions of the APSSZA March 1, 1988.

- | | | |
|-----------------------|------------------------|----------------------------------|
| 1. Fremont Peak | 22. Camp Rock Mine | 43. Big Bear City |
| 2. Bird Spring | 23. Silver Bell Mine | 44. Rattlesnake Canyon |
| 3. Opal Mountain | 24. Sunshine Peak | 45. Bighorn Canyon |
| 4. Superior Lake | 25. Lavic Lake | 46. Landers |
| 5. The Buttes | 26. Apple Valley North | 47. Goat Mountain |
| 6. Lockhart | 27. Fairview Valley | 48. Deadman Lake SW |
| 7. Water Valley | 28. Grand View Mine | 49. Deadman Lake SE |
| 8. Mud Hills | 29. Fry Mountains | 50. Yucca Valley North |
| 9. Kramer Hills | 30. Iron Ridge | 51. Joshua Tree North |
| 10. Barstow | 31. Galway Lake | 52. Sunfair |
| 11. Yermo | 32. Lavic SE | 53. Twentynine Palms |
| 12. Harvard Hill | 33. Apple Valley South | 54. Valley Mountain |
| 13. Barstow SE | 34. Fifteenmile Valley | 55. Yucca Valley South |
| 14. Daggett | 35. Lucerne Valley | 56. Queen Mountain |
| 15. Minneola | 36. Cougar Buttes | 57. Twentynine Palms
Mountain |
| 16. Newberry Springs | 37. Old Woman Springs | 58. Newhall |
| 17. Troy Lake | 38. Melville Lake | *59. El Casco |
| 18. Hector | 39. Emerson Lake | *60. Lakeview |
| 19. Turtle Valley | 40. Hidalgo Mountain | *61. Frink NW |
| 20. West Ord Mountain | 41. Deadman Lake NW | *62. Frink |
| 21. Ord Mountain | 42. Fawnskin | |

*Revised zone map

Agencies affected by these Special Studies Zones include the Cities of Barstow, Moreno Valley, Twentynine Palms, and Santa Clarita and the Counties of Imperial, Riverside, Los Angeles, and San Bernardino.

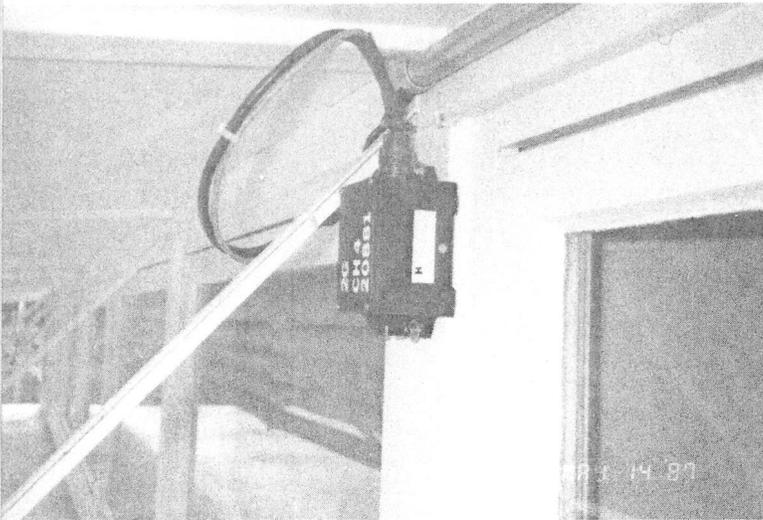
These maps were released following an extensive public review period conducted throughout the first half of this fiscal year.

3. Board Site Visit of the Parkfield Area

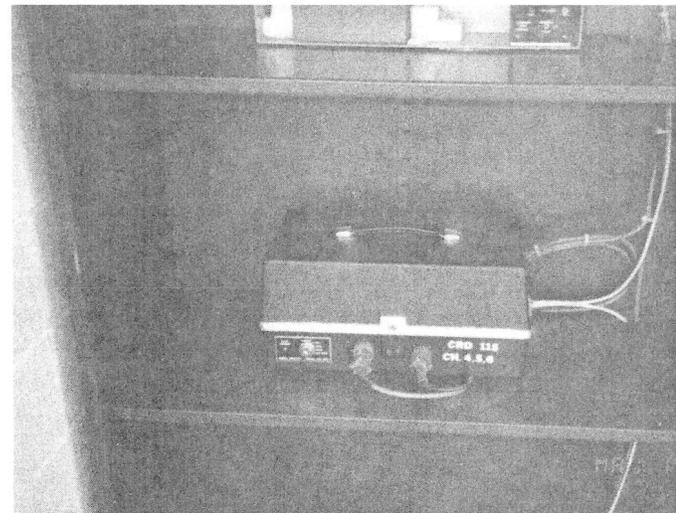
On September 17, 1987, the Board visited the town of Parkfield, located in central California, to view ongoing earthquake instrumentation and monitoring

activities along the San Andreas Fault by the Division of Mines and Geology and the U.S. Geological Survey. Because Parkfield lies between two different sections of the San Andreas Fault and earthquakes occur in the area approximately every 22 years, it is an ideal location for studying earthquakes and gaining information that could possibly lead to future predictions of earthquakes.

Among the sites visited by the Board were: The Parkfield Array consisting of 50 accelerographs, stationed in fields straddling the fault, that are in a continuous standby mode until triggered by the onset of ground shaking; instrumentation of the Parkfield schoolhouse where strong motion sensors are mounted on the floor, side walls, and roof and connected to a central recorder outside the building; an observatory, atop Car Hill, housing a laser that bounces off 17 distant reflectors to measure movement and subtle ground warping; and, a test area known as Turkey Flat containing strong motion sensors that gather data to be used to evaluate the cost and reliability of contemporary methods used to estimate how local site geology affects ground motion during earthquakes.



Strong motion sensor mounted on side wall of Parkfield Schoolhouse.



Central Recorder located outside Parkfield Schoolhouse for monitoring strong motion sensors.

4. The Landslide Hazard Identification Act

The Landslide Hazard Identification Act (LHIA) was chaptered in September 1983, becoming effective January 1, 1984 (Chapter 997, Statutes of 1983). This Act formally recognized the problem of unstable slope hazards (landslides, mudslides, debris flows, slumps, soil creep, etc.) that occur throughout much of California. These problems have been underscored by the tragic loss of life and property due to storm-triggered slides over the past few years.

The LHIA provides for a state-local cooperative mapping program to identify landslide-prone areas in the path of urbanization. The Act requires the Director of the Department of Conservation to establish within the Division of Mines and Geology a Landslide Hazard Identification Program that is charged with developing maps of landslide hazards within urban and urbanizing areas of the State. Mapping of these areas by the Division of Mines and Geology is directed by priorities and guidelines established by the State Mining and Geology Board.

According to Section 2685(b) of the LHIA, priorities for the mapping program are to reflect the following factors in order of importance: (1) the severity of the landslide hazard, (2) the willingness of lead agencies and other public agencies to share the cost of mapping within their jurisdictions, (3) the availability of existing information, and (4) the need to supplement information used in existing landslide hazard abatement or prevention programs.



Slope failure on ranch land off Interstate 80
in the Sulphur Springs Mountain.

5. Site Visit of Geohazard Mapped Areas In and Around Pleasant Hill

On March 10, 1988 the Board visited areas mapped, in and around Pleasant Hill, under the Landslide Hazards Identification Program and the Alquist-Priolo Fault Evaluation Program to assess potentially hazardous conditions identified by DMG staff and provided to local agencies for use in land development for the protection of the public from possible economic loss and injury.

The morning portion of the tour was devoted to viewing landslide hazard areas where there was evidence of slope failures including earthflows, landslides, and debris-flow scars. Among the areas viewed were the south half of Fairfield North Quadrangle (Landslide Hazard Identification Map [LHIM] #11), the Cordelia-Vallejo project (LHIM #13), Sulphur Springs Mountain, and landslide terrain features near the Green Valley Fault (LHIM #8). Stereographic aerial photographs, the single most important source of landslide information for supplementing field studies, were provided for viewing using mirror stereoscopes. The photos not only record anomalous topographic symptoms of slope failure, but they also permit reviewing the behavior of slopes through time, since debris-flow scars are often healed over in a few seasons by vegetation.

The remainder of the tour was spent viewing the Concord Fault and special studies zones mapped areas. The sites viewed included a sag pond (large natural depression), right laterally offset curbs and cracks in streets, left stepping cracks in a parking lot, and creep deformation of streets, sidewalks, a retaining wall, and buildings.



Investigating offset curbs and sidewalks atop the Hayward fault in Concord.

C. Legislation

1. Assembly Bill 2903

At the September 18, 1987 business meeting, the Board voted (Resolution 87-19) to request the Department of Conservation to seek legislation removing the sunset provision from the Landslide Hazard Identification Act.

This action was taken by the Board in response to the effectiveness of the Landslide Hazard Identification Program (LHIP), which has mapped 660 square miles since July 1984. It was noted by the Board that losses from landslides and related failures in California approach \$200 million annually and based on the success that local agencies have had using landslide hazard maps in planning and grading-code enforcement, an estimated 90 percent of future landslide losses in California's yet-to-be-developed areas could be avoided. Also, local agencies had requested that an additional 2,000 square miles be mapped.

Assembly Bill 2903 by Assemblywoman Bev Hansen extended the LHIP sunset date from January 1, 1989 to January 1, 1995, and requires the Legislative Analyst, in the 1994-95 budget process, to review implementation of the Act. The bill was signed into law by the Governor on August 11, 1988 and chaptered as Chapter 395, Statutes of 1988. The bill takes effect January 1, 1989.

Chairman Anderson presenting Resolution 88-12 to Brother McDermott.



D. Recognition of California Educators in the Geologic Hazards Field

An important interest and concern of the Board is the development and encouragement of geologic education in the State. Geologic education is important to the management of California's diverse and abundant mineral resources as well as awareness of the potential for geologic hazards, particularly in light of the State's increasing population and competition for land use.

The Board was therefore pleased to have the opportunity at the July 1988 regular business meeting to formally recognize (Resolution 88-12) Robert J. McDermott S.J. for his many contributions to the field of geology and earth science. A teacher at Loyola High School and a Jesuit Priest for 50 years, Brother McDermott also received the "Best Teacher" award from the National Association of Geology Teachers, Far Western Section.

E. A Look to the Future

In the coming year, the Board will be busy with the completion of several projects including the designation of mineral lands in the Stockton/Lodi and Palm Springs Production-Consumption Regions.

Also, a major issue for the Board's review will be compliance with the reclamation provisions of SMARA, particularly in light of the recent SMARA amendment (AB 747, Sher, Chapter 975, Statutes of 1987) giving vested mining operations a "window" period for filing reclamation plans with the appropriate lead agency. To that end, a "Mining Operations Subject to SMARA" or "MOSS" list, is being developed. Further, a more specific state-federal memorandum of understanding for more effective coordination of mining activities on federal lands, as well as a model agreement for use at the local level between the counties and federal agency district offices, should be completed.

Ongoing activities for the Board include certification of local agencies surface mining ordinances and review of local agencies mineral resource management policies for inclusion in general plans. Receipt of petitions for mineral land classification and appeals involving decisions on designation and reclamation plans can also occur throughout the year.

The Board is looking forward to the many tasks ahead.