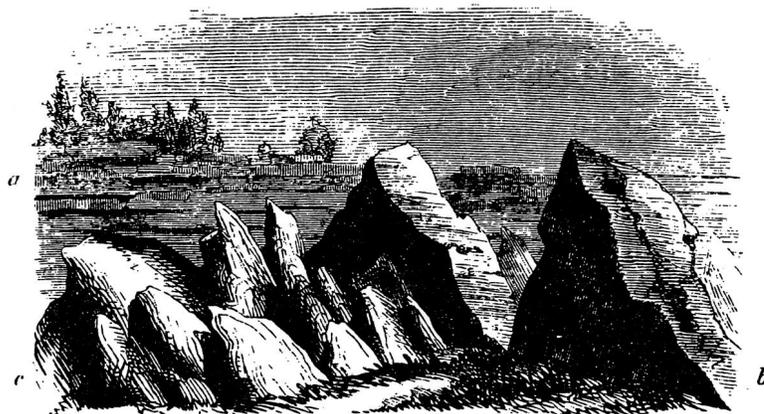


State of California
MINING AND GEOLOGY BOARD

ANNUAL REPORT

1979



LIMESTONE AND TRAP DYKE NEAR SONORA.

a. Superficial detritus. *b.* Trap dyke. *c.* Limestone.

State of California
MINING AND GEOLOGY BOARD

ANNUAL REPORT
1979

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TABLE OF CONTENTS

Major Board Actions

A. Mineral Resource Conservation..... 2
B. Mined Lands Reclamation..... 5
C. Geohazards..... 7

Recommendations to the Legislature Regarding the Surface
Mining and Reclamation Act

A. Augmentation of staff and funding..... 8
B. Increased statutory authority.....10
C. Clarification of the Act.....12
D. Expansion of the Act's mineral
resource conservation program.....13
E. Consideration of the need to modify the Act to meet the
objectives of the Federal coal act.....14

Recommendations to the Governor.....14

Recommendations for Needed Earth Science Research.....15

STATE MINING AND GEOLOGY BOARD'S
ANNUAL REPORT TO THE GOVERNOR
AND THE LEGISLATURE - 1979

INTRODUCTION

We herein present the highlights of the Mining and Geology Board's activities during the past year, particularly in implementing the Surface Mining and Reclamation Act of 1975 (SMARA) and the Alquist-Priolo Special Studies Zones Act of 1972 (APSSZA).

This report combines the Board's report to the Legislature on actions taken during the preceding fiscal year and on legislative recommendations for more complete implementation of SMARA, and a report to the Governor and the Legislature on needed earth science research (Section 2717 of the Act and Section 674, Chapter 2, Division 1 of the Public Resources Code).

MAJOR BOARD ACTIONS

The Mining and Geology Board hereby submits its Annual Report on actions taken during 1979.

A. Mineral Resource Conservation

1. First formal mineral lands classification (San Fernando Valley Region) was accepted and transmitted to affected lead agencies.

Classification of mineral lands in the San Fernando Valley Region, Los Angeles area, was submitted by the State Geologist and accepted by the Mining and Geology Board on May 25, 1979. This report identifies sand and gravel deposits needed to supply projected 50-year needs of the region.

This is the first formal classification accepted under the Board's Guidelines for Classification and Designation of Mineral Lands which were adopted in June, 1978. This classification is precedent setting both from the standpoint of its scientific methodology and from its being the first in a series of mineral land classifications now in progress in the Los Angeles and San Francisco metropolitan areas.

This report was transmitted to affected lead agencies for incorporation into their planning and decision-making process as required by SMARA.

2. Guidelines for the Classification-Designation Petition Process were adopted.

The Board's Guidelines for Classification and Designation of Mineral Lands provide for case-by-case classification and designation of

significant mineral deposits in nonurban areas by a petition process. This process was developed in recognition of the mineral potential of such nonurban areas of the state as the California Desert, the Sierra Nevada and Klamath Mountains. In the absence of the petition process, the Board is constrained in pursuing a comprehensive classification-designation program in these areas, which constitute more than 95% of the state's land area.

However, petitions for mineral deposits in nonurban areas submitted pursuant to the Guidelines cannot be acted upon in a timely fashion due to funding and staffing constraints. Rather than place a moratorium on petitions from these areas, the Board developed criteria to guide it in accepting petitions and in establishing priorities for classification.

These Guidelines were adopted by the Board on July 12, 1979.

3. A petition, submitted by Pfizer Corporation, for classification of limestone deposits was accepted for classification.

Pfizer Corporation's petition for classification of limestone deposits in the Lucerne Valley, San Bernardino County, was accepted by the Board on May 25, 1979. These deposits are important sources of limestone for industrial use throughout the state, meet the threshold value of significance as required by the Board's Petition Guidelines, and are being threatened by urbanization in the Valley.

It is anticipated that the State Geologist and the California Division of Mines and Geology (CDMG) will proceed with classification of these deposits prior to June 30, 1980.

4. Guidelines for Mineral Resource Management were adopted.

To aid local government in their implementation of the mineral resource conservation requirements of SMARA, the Board adopted "Guidelines for Mineral Resource Management" on May 25, 1979. These Guidelines suggest goals and policies for use by local government to protect and assure the wise use of identified mineral resources. Land uses which are compatible and incompatible with mining are also defined.

5. A policy distinguishing between a lead agency's land-use considerations required for areas classified as MRZ-2 and for areas designated to be of regional or of statewide significance was adopted.

Mineral information provided by SMARA's classification-designation process is for use by the lead agency in developing a policy framework for subsequent land-use decision making. This information also provides the lead agency with a wider perspective of the importance of a mineral deposit to a region, or to the state and the nation. Land-use decisions, including approval or denial of permits, are made in the context of the lead agency's established mineral resource management policies. While mineral information is an important consideration, it may or may not be the overriding one.

The State Mining and Geology Board recognizes that a distinction should be drawn between criteria used by the lead agency in making land-use decisions involving areas classified by the State Geologist as MRZ-2 and criteria used in land-use decisions involving areas designated by the State Mining and Geology Board to be of regional or statewide significance.

Thus, on May 25, 1979, the Board adopted the policy that land-use decisions involving areas classified by the State Geologist as MRZ-2 shall be made in accord with the lead agency's mineral resource management policies and also shall be guided by the importance to the lead agency's area of jurisdiction of the significant mineral deposits in the MRZ-2 area in relation to the importance of alternative land uses.

Decisions involving areas designated by the Board as being of regional significance shall be in accord with the lead agency's mineral resource management policies and also, in balancing mineral values against alternative land uses, shall consider the importance of these mineral resources to their market region as a whole and not just their importance to the lead agency's area of jurisdiction. In areas designated by the Board as being of statewide significance, land-use decisions by a lead agency shall be in accord with its mineral resource management policies and also, in balancing against alternative uses, shall consider the importance of the mineral resource to the state and nation as a whole.

6. Classification priorities were reordered to enable the State Geologist to proceed with classification of the lower Santa Clara River, Ventura County, ahead of schedule. This was done to provide mineral resource data to local government in advance of their decision on mining in the river.

Ventura County was faced with a one year deadline for completing an Environmental Impact Report, which is required before conditional use permits can be issued to sand and gravel operators in the Santa Clara River of coastal Ventura County. This area supplies about 90% of the sand and gravel for the Ventura-Oxnard area. Flood Control District restrictions on digging depths make it necessary to permit aggregate mining in areas outside the River's flood control channel or to import sand and gravel to assure a continued supply of construction aggregate.

It was felt by the County, aggregate producers within the area, and recommended by the State Geologist that the classification of this area would be useful in assessing the need for, and location of new aggregate resources to be committed to mining in the future.

Therefore, on May 25, 1979, the State Mining and Geology Board altered its priorities adopted November 2, 1978, to permit the classification of the Ventura coastal area as Priority 1 under urban areas, and following the classification of the San Gabriel and Orange County Production-Consumption Regions of the greater Los Angeles area.

7. A mineral resource conservation forum was held to discuss the effects of the federal California Desert Conservation Area (CDCA) plan on mineral resource conservation and development.

The State Mining and Geology Board, in its 1978 Annual Report, indicated its concern that information on the California Desert Conservation Area's (CDCA) mineral potential, known from geologic and mineral occurrence studies to be very large, is not commensurate with the scope of pending land-use decisions by the Federal Government.

The Department of Interior, under mandate from the Federal Land Policy and Management Act of 1976, is conducting a study of the desert which requires that recommendations for land-use management be made to the Congress by September 30, 1980.

The Board in monitoring the progress of the CDCA study and to provide a forum for discussion of possible impacts of the study's recommendations on mineral resource conservation in the area, conducted a workshop in Barstow on July 12, 1979. Representatives from affected local and state agencies, the Bureau of Land Management (BLM) and mining industry representatives participated. The Board subsequently reviewed a pre-publication draft, "first cut", of the CDCA plan in September and provided informal comments on it to the BLM staff.

The Board is concerned that the language of the plan, as reviewed, is too vague to aid actual planning and that there is no real plan or decision-making process for determining when mining is compatible in the case of conflicting multiple uses.

B Mined Lands Reclamation

1. Policy concerning on-site construction, borrow pits, and mining on privately-held forest lands was adopted.

Questions raised by several lead agencies concerning on-site construction, borrow pits, and mining on privately-held forest lands indicated the need for clarification of these items in the Board's Policy for Surface Mining and Reclamation Practice.

The Surface Mining and Reclamation Act (SMARA) exempts certain activities, such as excavations or grading conducted for on-site construction, from the Act's requirements. However, on-site construction is neither defined in the Act nor in the Board's Policy. Confusion exists as to whether excavations (borrow pits) for roadwork or other construction purposes is considered on-site construction when it is off-site, but on property which is near or contiguous to the construction site and under common ownership.

The Board's Policy, in part, states that, "Normally, borrow pitting,.... segregation and stockpiling of mined materials (and recovery of same) would be deemed to be surface mining operations unless specifically excluded under Section 3506a." However, Section 3506a exempts on-site construction among other activities.

The Forest Practice Act of 1973 (FPA) provides for the management of timber and forest lands to insure their continued productivity. Excavations (borrow pitting) may occur on these lands for construction and maintenance of roads and for erosion control activities required by FPA regulations and individual timber harvest plans approved under FPA regulations. However, the

FPA and its implementing regulations do not specifically address the regulation of such excavations or reclamation of lands disturbed by these activities. Confusion exists as to whether such mining activities are properly regulated under FPA or under SMARA.

To resolve these issues, the Board, on July 12, 1979, added a definition of on-site construction to and redefined borrow pits in its Policy for Surface Mining and Reclamation Practice. The Board also incorporated into this Policy its position that borrow pitting on privately held forest lands is subject to the requirements of SMARA.

2. A number of actions were taken by the Board to assure lead agency and operator compliance with SMARA.

As part of an effort begun last year to assure compliance with SMARA, a June, 1979, canvass of the 69 lead agencies responsible for implementing the Act indicated that 13 counties and 3 cities had not adopted SMARA ordinances. Letters were sent to these 16 lead agencies asking for their compliance schedule and advising them of the legal implications of further inaction.

Without a SMARA ordinance, a lead agency cannot issue valid permits for surface mining operations. In addition, mining operators under a noncomplying lead agency's jurisdiction cannot comply with the Act.

The Board also requested that the Attorney General's Office take appropriate legal action against Mendocino County and Sierra County. Both counties have adopted surface mining ordinances which exempt certain mining activities not exempted by the Act or Board Policies.

3. State-federal agreement on coordination of surface mining and reclamation signed.

The Board took the position, on April 22, 1978, that SMARA applies to all lands in California, including federal lands. This was done to insure that regulations governing surface mining and reclamation practice are applied as uniformly as possible throughout the state and to minimize unnecessary duplication of such regulations by local, state, and federal agencies. This position is in accord with Opinion SO 76/14 June 29, 1977, of the Attorney General of California.

In support of these objectives a Memorandum of Understanding between the Resources Agency, the U.S. Forest Service, and the U.S. Bureau of Land Management, which was developed under the Board's auspices, was signed in February, 1979. This agreement provides for cooperation between local, state, and federal land managing agencies in fulfilling their respective regulatory responsibilities for surface mining and reclamation. This understanding also provides for the mutual acceptance by local government (lead agencies) and federal agencies of each other's reclamation plans, mining operation plans, and environmental documents when they meet each individual agency's regulatory requirements. It is hoped that this understanding will help avoid or greatly reduce duplication of effort by mine operators and regulatory agencies in assuring that mineral extraction is conducted in an environmentally acceptable manner.

C. Geohazards

1. Revised policies and criteria with reference to the Alquist-Priolo Special Studies Zones Act were adopted.

In response to recommendations from a joint subcommittee of the Seismic Safety Commission and the Mining and Geology Board, revision of the Board's Alquist-Priolo Special Studies Zones Act (APSSZA) policies and criteria were developed and adopted following a January 31, 1979, public hearing. These recommendations clarified the Board's policies and criteria and their application to projects proposed for zones of active faulting as identified by the State Geologist.

2. Preliminary Maps of New or Revised Special Studies Zones were reviewed.

Pursuant to Section 2622 of APSSZA and to the Board's Procedures for Review of Special Studies Zones (SSZ) Maps adopted August 11, 1978, the Board reviewed, at a November 2, 1979, public hearing the following preliminary SSZ maps (USGS 7 1/2 minute quadrangle sheets):

- | | | |
|------------------------|-------------------|---------------------------|
| *1. Niles | 11. Alberhill | 21. Julian |
| 2. Yorba Linda | 12. Elsinore | 22. Earthquake Valley |
| 3. Prado Dam | 13. Wildomar | 23. Monument Peak |
| *4. Whitewater | 14. Murietta | 24. Aqua Caliente Springs |
| *5. Desert Hot Springs | 15. Temecula | 25. Arroyo Tapiado |
| *6. Seven Palms Valley | 16. Pechanga | 26. Sweeney Pass |
| *7. San Jacinto | 17. Pala | 27. Carrizo Mountain |
| *8. Hemet | 18. Mesa Grande | *28. Brawley |
| 9. Corona South | 19. Warners Range | 29. Alamorio |
| 10. Lake Mathews | 20. Ranchita | 30. Holtville West |

*Revised SSZ map

These maps which identify active fault zones and are subject to the requirements of APSSZA, were transmitted by the Board with its comments to the State Geologist for issuance as official SSZ maps.

3. Evaluation of the Strong Motion Instrumentation Program (SMIP) Regarding the Reliability of the External Timing Device

The Strong Motion Instrumentation Program (SMIP) Program of CDMG has quickly become perhaps one of the most important strong ground-motion data sources of the world. These data is particularly useful for California engineers, working on earthquake-resistant designs in order to protect lives and property in California.

The Board has a continuing interest in augmenting the usefulness of the data generated by SMIP, and has closely monitored its output. The addition of the external timing device has made the data from the SMIP network much more useful in many regards. For example, we now can derive the phasing data of strong ground motion as well as improve estimates of earthquake epicentral locations.

RECOMMENDATIONS TO THE LEGISLATURE

The State Mining and Geology Board has observed the implementation of SMARA for about 4 years and has identified areas where the Act needs to be strengthened to more completely carry out its original purposes. These areas involve increasing staff and funding support, increasing the Board's statutory authority, and clarification of the Act's requirements and program directions. The Board, therefore, recommends that the following changes, staffing, and funding augmentations be made to the Surface Mining and Reclamation Act.

- A. Augmentation of staff and funding of the CDMG is needed to meet the Act's mineral resource conservation and environmental protection objectives in the following program areas:
 1. Further support is needed for the mined lands reclamation program to assist local government in implementing SMARA, and to monitor lead agency compliance with the Act.

Beyond the review of reclamation plans from lead agencies, on an as requested basis, there is no formal program in the CDMG directed towards mined lands reclamation. There is a need for staff and funding for the CDMG to develop reclamation guidelines applicable to specific geographical settings and to the mining technologies which would be employed in those settings. These guidelines would be used by local governments in judging the adequacy of reclamation plans approved pursuant to SMARA.

Increased interest in the dredging of gold in the Sierra Nevada foothills, construction of a multi-million dollar pilot project to extract oil from diatomaceous earth mined in the southwestern part of the San Joaquin Valley, and base metal exploration programs in the California Desert which could culminate in one or more major open pit mines point to some of the potential reclamation problems facing lead agencies in the future.

Lands subject to such mining activities may not be adequately reclaimed when they occur in jurisdictions without sufficient mining and reclamation expertise with which to judge the adequacy of submitted plans. In such situations, the state has an overriding responsibility to assist local government in not only fulfilling its responsibilities under SMARA, but in assuring that mined lands are reclaimed in an acceptable manner. This responsibility should go beyond the now passive role of the state in providing technical assistance on an "as requested" basis.

Currently, there are 69 lead agencies involved in regulating the mining and reclamation activities of about 500 operators throughout California. Staff presently available to monitor lead agency compliance, in addition to providing administrative support to the Board consists of 2.5 persons (Special Representative, Secretary, and one half person from the CDMG).

The Special Representative and Secretary are primarily involved with providing staff services to the Board and to some extent monitoring lead

agency compliance. Time contributed by the CDMG is devoted to reviewing reclamation plans, environmental impact reports dealing with mining, mining permits, and local SMARA ordinances on an "as requested" basis. Additional time is also spent in developing reclamation programs such as the reclamation workshop which is to be offered in 1980. The Division's classification activities are not included in this estimate as they are not directly involved in the administration and reclamation aspects of SMARA.

The Board is presently involved in a compliance program to insure that identified lead agencies within the state have adopted SMARA ordinances. By resolution, the Board has asked the Attorney General's Office to take appropriate legal action in cases of noncompliance. Litigation resulting from future actions of the Board in assuring compliance also could have a significant impact on staff time to the detriment of other activities.

Monitoring of lead agency implementing actions beyond adoption of a SMARA ordinance will, because of lack of staff, rely on "whistle blowing" by concerned citizens. The need for more effective monitoring is underscored by the number of complaints received and acted upon by the Board during the past year. These complaints involved mining activity in a number of counties, Butte, Contra Costa, Mendocino, and Sierra, which had mining ordinances not in conformance with SMARA.

Continuing the low level of state assistance to local government in developing reclamation guidelines and in monitoring of their performance in the implementation of SMARA encourages federal preemption as has occurred with coal mining under the Federal Surface Mining Control and Reclamation Act (SMCRA).

2. Mineral lands in nonurban areas of California, which are being subject to increasing urbanization, need to be effectively addressed by SMARA's classification-designation process through increased staff and funding.

The Board recognizes the mineral potential of such nonurban areas of the state as the Mojave Desert, Sierra Nevada, and the Klamath Mountains and the need for an effective process to protect significant mineral deposits in these areas from land uses incompatible with mining. These areas have potential for major gold, nickel, and tungsten production as well as being important sources of boron, rare earths, iron, cement, and gypsum. They are also being subjected to increased urbanization from adjacent metropolitan areas and hence to the kind of land-use threats to mineral resource development at which SMARA is directed.

Classification of these areas, according to the Board's revised priorities and current CDMG staffing levels, will not occur on an extensive basis until 1983 following classification of mineral lands in urban areas. The current classification program is directed by legislative mandate primarily towards urban areas of the state as identified by the Office of Planning and Research (OPR). These areas comprise less than 5% of California's total land area.

The Mining and Geology Board has established a petition process, which provides a mechanism to allow threatened mineral deposits, outside of the urbanizing areas identified by OPR, to be brought to its attention. The requirements set by the Board for hearing these petitions are stringent to assure that the deposits are significant and to demonstrate the nature and imminency of the land-use threat. Petitioners are required to supply sufficient information to allow the Board to determine the urgency for classification. The Board then, in turn, directs staff in the Division to evaluate the information submitted.

However, existing staff within the Division of Mines and Geology is not adequate to handle these petitions without jeopardizing its existing program (priority classification programs in urban areas). Redirection of this staff would also contradict legislative direction. To refuse petitions or ignore important and threatened mineral resources in 95% of the state is contrary to SMARA's mineral resources conservation objectives.

The Board, therefore, recommends that an additional economic geologist be provided to the CDMG minerals resource staff to support a minimum level of petition activity, estimated to be 3 to 4 petitions annually, and to begin developing a more comprehensive classification program for these areas.

3. CDMG's earth science programs should be strengthened to be commensurate with the economic importance of California's mineral resources and with the potential threat to the public safety from geologic hazards within the state.

According to U.S. Bureau of Mines estimates, \$1.4 billion of hard minerals were produced in California during 1978. The portion of the CDMG's budget allocated to mineral resource activities for Fiscal Year 1978-79 amounted to .06% of this estimate or about \$797,000.

In that same year, about \$2.8 million was allocated to CDMG's geohazards investigations which represent about .2% of the estimated average annual loss to the state from geohazards. This loss, over the period 1970-2000, is estimated by the CDMG to approach \$38 billion.

As evidenced by current funding levels of the CDMG, the state's commitment to such critical earth science issues as assuring the availability of mineral resources critical to the state's economy and mitigation of potential threats to urban areas from earthquakes, landslides, and other geohazards is clearly inadequate.

B. Increased statutory authority to more completely carry out the purposes of the Act is needed in the following areas:

1. That the Act establish a date for lead agency compliance, but provide that jurisdictions without active surface mines may defer adopting an implementing ordinance until the filing of a permit application, and
2. That the Act provide the State Mining and Geology Board with authority to issue permits and approve reclamation

plans when a lead agency fails to adopt an ordinance implementing SMARA.

SMARA does not set a deadline for lead agency compliance, but only requires that, within an unspecified time, a lead agency adopt ordinances establishing procedures for the review and approval of reclamation plans and the issuance of permits to conduct surface mining operations. The Act does require that after January 1, 1976, operators of new mines are required to obtain a permit and approval of a reclamation plan from the lead agency. In addition, operators of existing mines with vested rights are required to submit to the lead agency and receive, within a reasonable period of time, approval of a reclamation plan for operations conducted after January 1, 1976.

To address the need for a deadline for lead agency and operator compliance, the Mining and Geology Board, in its Guidelines for Surface Mining and Reclamation Practice, required that reclamation plans, from existing operations, be submitted within one year from the effective date of the Guidelines or by April 28, 1978. By implication, this requires that a lead agency adopt a SMARA ordinance by that date as operators cannot comply with this requirement in the absence of a local implementing ordinance.

A recent canvass of 69 identified lead agencies indicates that 16 counties and cities have not adopted ordinances in conformance with SMARA. Continued inaction by these 16 lead agencies places operators within their jurisdiction in legal jeopardy. It is felt that the Board should have the authority to assume the role of a lead agency to assure compliance with SMARA in such cases.

3. That the Act be clarified as to the responsibilities of lead agencies in making land-use decisions involving mineral information provided under the classification-designation process.

Mineral information provided by the Mining and Geology Board under SMARA's classification-designation process is to be used by local governments in its land-use planning and decision making activities. The Act, as now written, does not distinguish between the criteria a lead agency would use in land-use decision making involving mineral deposits classified by the State Geologist as MRZ-2, and the criteria to be used in such decision making when it involves mineral deposits designated by the Mining and Geology Board to be of regional or of statewide significance.

A resolution passed by the Board on May 25, 1979, provided the following criteria to make this distinction and which are recommended for inclusion into SMARA:

- a. Decisions involving areas classified by the State Geologist as MRZ-2 shall be made in accord with the lead agency's mineral resource management policies and shall be guided by the importance to the agency's area of jurisdiction of the significant mineral resources in the MRZ-2 area in relation to the importance of alternative land uses.

- b. Decisions involving areas designated by the Board to be of regional significance shall be in accord with the lead agency's mineral resource management policies and shall also, in balancing mineral values against alternative land uses, consider the importance of these minerals to their market region as a whole and not just their importance to the lead agency's area of jurisdiction.
 - c. Decisions involving areas designated by the Board as being of statewide significance shall be in accord with the lead agency's mineral resource management policies and shall also, in balancing against alternative uses, consider the importance of the mineral resources to the state and nation as a whole.
4. That the Act requires a lead agency's ordinance implementing SMARA to be certified as adequate by the State Mining and Geology Board prior to its becoming effective.

SMARA requires that lead agencies adopt ordinances which establish procedures for the review and approval of reclamation plans and the issuance of permits to conduct surface mining operations. Such ordinances are to be continuously reviewed and revised as necessary to assure that they conform to the state Policy for Surface Mining and Reclamation Practice. The Act and the state Policy also require that reclamation plans for surface mining operations meet certain standards.

There is now no provision in the Act which requires state review and certification of the adequacy of a lead agency's surface mining and reclamation ordinance. Such a review and certification is necessary to assure that the requirements of the Act and state Policy are complied with at the local level.

Review of several lead agency ordinances, Sierra County, Mendocino County, and Butte County, in response to complaints of unregulated surface mining activity, indicates that inadequate SMARA ordinances have been adopted. Operators in such jurisdictions may be in violation of SMARA though in conformance with the local ordinance.

Certification of local SMARA ordinances by the state would also assure operators that the local surface mining ordinances, under which they operate, conform to the state Act.

C. Clarification of the Act is needed in the following area:

1. That the Act clarify the definition of lead agency such that under certain circumstances, a state agency, in addition to a county or a city, may also be a lead agency if the Board determines that it has the principle responsibility for issuing permits pursuant to SMARA.

SMARA is not clear as to whether public agencies other than counties and cities may be considered lead agencies for implementing the Act's requirements.

The Act states that a "lead agency means the city or county which has the principle responsibility for approving a surface mining operation...", and further provides for modification of this definition if "...the context otherwise requires,...". SMARA also provides that "whenever a proposed surface mining operation is within the jurisdiction of two or more public agencies,...", and "... a dispute arises as to which is the lead agency,..." "...the Board shall designate the lead agency...".

Mining operations (dredging for sand and gravel and oyster shells) in the San Francisco Bay and offshore involve agencies such as the State Lands Commission, the California Coastal Commission and the San Francisco Bay Conservation and Development Commission which have permitting authority. They could be considered to be the logical lead agency in these cases, as cities and counties are not clearly involved.

D. Expansion of The Act's mineral resource conservation program emphasis is needed in the following areas:

1. The narrow focus of SMARA's classification-designation process on the less than 5% of the state which is urban needs to be expanded to include other economically significant mineral lands in nonurban portions of California which are being threatened by incompatible land uses.

In focusing the Act's mineral lands classification-designation process on urban and urbanizing areas as defined by the OPR the Legislature addressed the problem of land use conflicts with mining for certain mineral commodities in certain geographical areas. For the most part, mineral commodities in urban areas are characterized by having a low unit-high place value. They consist primarily of construction aggregates and in some cases, clay and cement quality limestone. Construction aggregates, such as sand, gravel, and crushed stone, represents about 24% of the value of all non-fuel minerals produced in California in 1978 according to U.S. Bureau of Mines estimates.

While land-use conflicts involving mining operations in the state's traditional urban areas are of the greatest intensity, population shifts from the coastal metropolitan areas to inland and rural areas of the state threaten mineral lands of far greater economic value. It is, therefore, recommended that SMARA be given a more balanced focus between urban and non-urban areas to reflect not only the intensity of land-use conflict, but the value of the mineral commodities involved.

2. A stronger state role in federal land-use decisions involving mineral resources on public lands is needed to insure that California's policies on the conservation and development of its mineral resources are considered.

Over 45% of California's total land area is comprised of federally-managed lands. In some areas these lands occur as a checkerboard of public and private lands, in other areas federal lands comprise a high percentage of the lands within individual county boundaries. These lands include some of the state's more highly-mineralized areas, such as the

California Desert, Sierra Nevada, and Klamath Mountains. These same areas also have high recreational potential.

Land-use decisions made by the Federal Government in these areas which affect the conservation and development of mineral resources should be made in the same context as those made for the rest of the state. This requires that federal land-use decision making be integrated into SMARA's classification and designation process. This would assure statewide uniformity of mineral resource conservation planning and would provide for more effective communication on mineral resources issues between state and local agencies and federal land-managing agencies.

E. Consideration should be given to the need to modify the Act to meet the objectives of the federal SMCARA (Public Law 95-87).

SMCARA requires that states develop comprehensive regulatory programs for surface mining of coal. Such programs must be approved by the Department of Interior or federal standards will be imposed on the state.

Although at present, California has two operating lignite mines which may or may not be subject to SMCARA (in one operation lignite is mined for its montan wax content as a by-product of a clay operation; in the other operation, lignite is mined as an additive for clay products) the state does have some potential for other coal mines.

It is recommended that consideration be given to modifying California's SMARA to fulfill the purposes of SMCARA while retaining SMARA's two-tiered regulatory system of local implementation of statewide standards. Such a modification will allow for the regulation of surface coal mining in the state under an established permitting process which has the flexibility to deal with California's diverse geologic and geographic settings where mining and reclamation may occur.

SMCARA also mandates a study of reclamation standards for surface mining of other minerals. This study has been completed late this year by the National Academy of Science's Committee on Surface Mining and Reclamation and submitted to the Council on Environmental Quality (CEQ). Recommendations by the Committee and by CEQ could engender congressional action to extend SMCARA to other mineral commodities.

Early action by the state in amending SMARA to conform to federal standards for coal will lay the groundwork for state compliance with possible future federal requirements for other minerals. Such action will clearly indicate California's intention to regulate surface mining and will provide a test case for the effectiveness of the state's unique two-tiered approach.

RECOMMENDATIONS TO THE GOVERNOR

The Mining and Geology Board recommends that the administrative policy on hiring be reconsidered:

1. The continuation of the administration's present hiring policy will have a detrimental impact on the effectiveness of the CDMG.

The effects of the hiring freeze, if continued, prevents the CDMG from obtaining technically and scientifically qualified staff. This, in turn, affects the Division's ability to fulfill its responsibilities in such important program areas as:

- a) Review of major projects such as dams, nuclear power sites, and LNG terminals;
- b) Identification of such geohazards as active faults and landslide-prone sites in urban areas, and
- c) Providing technical assistance to local government in the review of reclamation plans for mined lands.

Under the administration's current hiring policy, vacancies are filled from within state service. If the required professional skills are not available, exceptions may be requested. The exception process is time consuming and may not be successful. Because the CDMG is a small, scientific organization, the state manpower pool from which it can draw is very limited.

For example, 90% of the state's 64 geologists are found within the CDMG.

The 10% of the manpower pool from which the CDMG can recruit to fill vacancies consists of 6 individuals spread throughout 5 other state agencies. Certain technical specialties, such as mined lands reclamation, economic geology, and seismology may not be found outside the CDMG.

Retirement of senior geologists of the CDMG, coupled with the present hiring policy, will tend to create a less experienced and hence less effective organization. The State Mining and Geology Board recommends that consideration be given to requesting a blanket exception to the present policy to cover earth science professional positions within the CDMG which cannot be met from within state service.

RECOMMENDATIONS FOR NEEDED EARTH SCIENCE RESEARCH

The Mining and Geology Board recommends the following program areas as needing further legislative and administrative consideration:

1. The Department of Conservation's study of California's soils problems and opportunities for soils protection should be implemented.

The State Mining and Geology Board is required by the Public Resources Code to represent the state's interest in the development of geologic information necessary to the understanding and utilization of the state's terrain and to the recognition and understanding of the state's earthquake and geologic hazards; submit each year to the Governor and Legislature recommendations regarding needed research projects in a wide variety of fields, including the state's terrain, reclamation of

mined lands and geologic and earthquake hazards; and provide for a public information program on these same matters.

The foregoing responsibilities require that the Board utilize a comprehensive knowledge of the status and behavior of soils in California, including such factors as their rates of formation, loss, erodibility, and alteration by man's activities; and their behavior (including failure) on steep slopes and during earthquakes.

The continuing subliminal loss and deleterious alteration of agricultural and forest soils in California is potentially the most serious existing long-term threat to the state's terrain and to its continued economic and environmental health.

At a joint meeting of the State Board of Forestry and the State Mining and Geology Board held in April, 1978, it was recommended that to sustain maximum forest productivity and to minimize adverse environmental impacts of logging on forest lands and adjacent streams in California, cooperative studies with a strong and essential soils element be initiated. These studies were further spelled out in written communication between the two Boards on September 27, 1978.

The Board in its 1978 Annual Report to the Governor and the Legislature expressed concern that California has no effective program for monitoring the deleterious changes that are occurring to its soils as a consequence of such activities as increased mechanization and the heavy use of chemicals in agriculture, over grazing, excessive ground water withdrawals, and conversion of forest lands to marginal grazing lands. The Board recommended that: 1) The protection of California's soils, which support its multi-billion dollar agricultural and silviculture industries should be of increasing concern to natural resource managers and public decision makers, 2) that future soil management decision making be founded on a thorough understanding of the rates of physical, chemical and biological changes occurring to the state's soils on an understanding of the underlying causative mechanisms for such changes, and on the amount of change which can be tolerated before productivity is impaired; and 3) that the Department of Conservation, through its efforts to develop a Soils Resource Protection Program, is best suited to begin to formulate and carry out an initial soil monitoring program.

Therefore, the State Mining and Geology Board strongly urges that the study of California's soils problems and opportunities for soils protection, now underway in the Department of Conservation, be developed into a strong and comprehensive state soils program.

Such a program is vital if the Board is to meet its responsibilities concerning the state's terrain, surface mine reclamation, and earthquake and geologic hazards such as landslides, accelerated soil erosion, abnormal stream sedimentation rates, and seismic ground response.

2. Mineral resource conservation programs such as recycling, end-use matching and substitution, need to be explored to assure the state with a continued supply of critical mineral commodities.

Under the SMARA the Board has the responsibility to identify and protect mineral resources of economic importance to the state. Implicit in this responsibility is the need to seek ways to minimize demand for these mineral resources that are in short supply, thereby increasing supply through mineral resource conservation programs. The Board feels that economic and technical feasibility studies of conservation programs such as the following are needed:

Reuse of mineral commodities through recovery and recycling programs such as are now occurring with aluminum, copper, and other base metals.

End-use matching by assuring that the physical and chemical specifications of final products or end uses are tailored to those of more readily available mineral commodities. For example, using crushed rock from quarries in place of river gravel as a road-base material.

Substitution of renewable resources (organic fertilizers for chemical) or industrial process by-products, (cement dust as a soil conditioner) for primary products derived from mineral resources.

3. Expediting Seismic Data Processing

The establishment of an operating Electronic Data Processing (EDP) system has been hampered by an enormous amount of repetitive documentation and paperwork required by the Department of Finance. The process of establishing this EDP system, first conceived two years ago, has been unduly slow. Urgent data processing needs as a result of recent large earthquakes in 1979 makes it necessary for the Board to recommend with a sense of urgency that:

- a. The Department of Conservation assign a high priority to the early establishment of an operating EDP system with concomitant organization of an appropriate data management staff and,
- b. The CDMG expedites the present strong motion data processing by using available outside facilities before the in-house EDP system is established.

Under mandate of SMIP these processed strong motion data must be expeditiously distributed to professional users in the engineering and scientific community. This timely distribution will ultimately provide increased margins of safety for the state's population resulting from better structural designs based on adequate seismic ground-motion information.