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PROPOSED GEOTHERMAL RULES/REGULATIONS

Comments on 1st Draft

1. Robert M. Kamins, U of H Geothermal Project
2. Edgar Craddick, Geothermal Expl. & Dev. Corp.
3. Kazu Hayashida, Honolulu Dept of Public Works
4. Edward Hirata, Honolulu BWS
5. Doak Cox, U of H Environmental Center
7. *Gordon A. Macdonald, U of H
8. *John W. Shupe, U of H Geothermal Project
9. Mae E. Mull, Hawaii Audubon Soc., Hawaii Island
12. *Alika Cooper, Congress of Hawaiian People
13. Stephen Morse, Hawaii Coalition of Native Claims
14. Helen Baldwin, Hawaii Island Conservation Council
16. Beverly Hookano
17. Heidi Meeker
18. William Whitemarsh, Student, Hawaii Comm. College
19. Andy Levin
20. Samuel and Ruth Hookano
21. *Jim Warren
22. *Edwina Akaka
23. *Jennifer Perry
24. *Vern Yamanaka
25. James Kumagai, Dept. of Health
27. Doak Cox, U of H Environmental Center
28. Ted G. Clause, Esq. for Standard Oil of Calif. & Chevron Oil
31. Henry T. Snow, Union Oil Co. of California

Date Received
March 22, 1976
April 6, 1976
April 6, 1976
April 27, 1976
May 4, 1976
May 4, 1976
May 4, 1976
May 4, 1976
May 6, 1976
May 6, 1976
May 6, 1976
May 6, 1976
May 10, 1976
May 14, 1976
May 21, 1976
Aug. 26, 1976
Aug. 30, 1976
Sept. 7, 1976

*Verbal comments at public hearing.
PROPOSED GEOTHERMAL RULES/REGULATIONS

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*Verbal comments at public hearing.
March 3, 1977

MEMORANDUM

TO: Hideto Kono, Director
   Department of Planning and Economic Development

FROM: Eugene M. Grabbe

SUBJECT: Rules and Regulations for Geothermal Resources

I have received the second draft of the "Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii" prepared by DLNR and have the following general, and in some cases, detailed comments.

1. Section 1.1 Purpose. It would be appropriate to include the statement "to make optimum use of geothermal resources" in this paragraph. For DLNR, as resource manager, optimum use is as important as prevention of degradation, etc. Indeed, many of the rules such as unit operation are directed toward optimization.

2. Section 1.6 Definition. On Page 3 "Operator"—change "mining operations" to "geothermal operations" to correspond to definition of "mining lease" at the top of the same page.

3. Section 2.1 Exploration Permit Required. I find this rule confusing. Most of the paragraph is devoted to what is not included in Rule 2.1. Can it be clarified somehow? Near the middle of the first paragraph is the statement, "...such drilling being regulated elsewhere in these rules and regulations." Change to read "...the rules and regulations for such drilling is covered under Rule ___ of this document." Cite rule. In most of the second draft the cross referencing is excellent.

4. Section 2.7 Duration of Permits. Should there be provision that the person with a permit can amend the scope of exploration as described in 2.2 when he applies for renewal, or is a new permit required?

5. Section 2.8 Confidentiality of Exploration Results. The way this paragraph reads, the Chairman of the Board receives the exploration results. This is appropriate. Does the Board have access to the results according to this rule?
6. Section 3.5 Mining Leases Without Public Auction. Delete 
"...on a competitive bid basis at public auction or..." 
and change "its" to "the Board's."

7. Section 3.7d Assignment of Mining Leases. Why are over-
riding royalties limited to 5%?

8. Section 3.11b Term of Mining Leases. It states "that lease 
shall continue for so long thereafter as geothermal resources 
are produced or utilized in commercial quantities." This 
is at variance with 3.11a which sets 65 years as the limit. 
Also, "commercial quantities" as used in this section is 
not defined.

9. Section 3.11c Term of Mining Leases. Change the last part of 
the sentence to read "...that lease may be continued for 
a period of five years and for as long thereafter, as 
geothermal resources are being produced or utilized in 
commercial quantities at the discretion of the Board."

10. Section 3.12b Rentals. What is the justification for 
deducting annual rental from production royalties due? 
Add at the end of the first sentence "...or established by the 
Board for leases without public auction."

11. 3.13b Royalties on Geothermal Production. The "gross sale 
price" for royalty competition is set by "price paid to 
other geothermal producers for geothermal production of like 
quality and quantity." Is this realistic? The State should 
establish a policy which is in the best interests of its 
citizens.

12. Section 4.10 Award of Leases. At one time there was discussion 
of establishing an upset price for bidders.

13. Section 6.2 Mining Lessee's Rights. In next to last line 
refer to Rule 7.2 after "plan of operations."

14. Part II - Drilling for Geothermal Resources. This part looks 
very good and covers all geothermal drilling in the State.
Mr. Dennis Niles, Director
Legal Aid Society of Hawaii
180 Kinoole Street
Hilo, Hawaii 96720

September 29, 1976

Dear Dennis:

As a follow-up to the discussion at our Board of Directors meeting of September 21, 1976, which you attended, the Puna Hui Ohana, Inc., a non-profit corporation formed by native Hawaiian families from lower Puna would like to make an official request for your legal assistance in ascertaining what traditional rights we, as native Hawaiians, can apply to the planning, development, and use of geothermal energy.

As you well know, much of the research and development of geothermal energy is already taking place in our Puna backyard. We are concerned, first of all, that the development of this alternate energy source may have a detrimental affect upon our fragile environment and our traditional way of life. Thus far, none of the existing governmental and private agencies involved in the research and development of this natural resource has consulted with us. As native people of this aina, we feel our desires should receive ample consideration.

Secondly, we fear that once fully developed, this precious resource may become exploited by profit-motivated power conglomerates. We wish to prevent this exploitation from occurring and perhaps one preventive step we can take is by establishing our own claim to this energy source.

As you can imagine, we are filled with uncertainty at this point. The rapidity at which the planning and development of this resource is proceeding alarms us. As is always the case, time is a big factor. With your assistance, we may be able to forestall major development until a good case for our rights can be prepared.
Mahalo for your taking the time to attend our Board meeting and expressing your commitment to the subject of native Hawaiian rights. We look forward to a very productive relationship.

A me kealoha pumehana,

[Signature]

PETER HAUANIO
Chairman of the Board

c: Herbert Matayoshi, Mayor, Hawaii County
   Jack Suwa, State Representative
   John Ushijima, State Senator
   Tom Fujii, Councilman, Puna District
   Christopher Cobb, Chairman, Board of Land and Natural Resources
   Larry Mehau, Hawaii Protective Ass'n., Ltd.
   Gail Kawaipuna Prejean, Director, Hawaiian Coalition of Native Claims
   Council of Hawaiian Organizations
   Charles Nakoa, Director, Queen Liliuokalani Children's Center
   Pae Galdeira, Chairman, Clients Council
October 8, 1976

Mr. Robert T. Chuck
Manager and Chief Engineer
Division of Water and Land Development
P. O. Box 373
Honolulu, Hawaii 96809

Dear Bob:

As discussed in our meeting with you and Dan Lum early last month, we have attempted to suggest changes, modifications and clarifications to the proposed rules and regulations for geothermal leasing of State lands in Hawaii. The format we have used is to take the proposed regulations and insert notes and comments where we felt they are appropriate and of substance. In the development of the notes and comments, one matter stands out very clearly; and that is the difficulty of attempting to regulate leasing for geothermal purposes based on HRS 182, which was apparently designed primarily for the purpose of the development of alumina ores.

Formulating regulations for the leasing and development of State lands for geothermal resources is made extremely difficult for you and your staff when such regulations must be based on a statute which has relatively little application to the subject matter. We believe that many of the notes and comments that we have made on the attached copy of the proposed regulations will point out this difficulty. Most other states approach the leasing of State lands by a specific statute dealing with that subject matter only and then legislate an additional law dealing with the State's regulatory authority over the development of geothermal resources on all lands within the State's boundaries. As an example of this, we are attaching a copy of Chapter 522 of the Oregon Revised Statutes which deals solely with the regulation of geothermal drilling and development anywhere within the State and, in addition, we are attaching copies of the pertinent Oregon statutes providing for the leasing of State lands for geothermal purposes.

As you can see, the regulatory statute is quite specific whereas the statutes providing for the leasing of State lands simply grant authority to the Oregon Division of State Lands to formulate rules and regulations dealing specifically with the leasing of State lands. We are also attaching a copy of the Oregon geothermal lease regulations, which carry out the legislative mandate. It is a much more satisfactory solution to the leasing problem for the legislature to leave the formulation of rules and regulations for the leasing of State
lands under the jurisdiction of a designated State Department because it allows a flexibility in adapting to changing conditions as opposed to the inflexibility of a statute.

Obviously, each and every State has certain considerations which are peculiar to that State; therefore, all laws, rules and regulations for the several states will not of necessity be the same. However, we feel that it would be helpful to you to have the material from the State of Oregon (if you do not already have same) so that the Hawaii Board of Land and Natural Resources might adequately consider the desirability of initiating appropriate procedures to obtain legislation dealing solely with the leasing of State lands for geothermal resource exploration and development. We firmly believe such a procedure would expedite the development of geothermal resources in Hawaii and do so in a manner which would be beneficial to Hawaii.

Please be assured that we stand ready to assist you in any manner you should desire to bring this matter to a satisfactory conclusion so that geothermal development can go forward in Hawaii.

Very truly yours,

CHEVRON OIL COMPANY

By Gordon B. Secor

GBS:jc
Attachments
STATE OF HAWAII
BOARD OF LAND AND NATURAL RESOURCES
Honolulu, Hawaii

REGULATION OF GEOTHERMAL EXPLORATION, MINING AND LEASING
ON STATE AND RESERVED LANDS IN HAWAII

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1.1 **Purpose.**

The purpose of these regulations is to prescribe uniform procedures for issuing permits for geothermal exploration and granting leases for geothermal mining on lands under the jurisdiction of the Board of Land and Natural Resources.

1.2 **Authority.**

These rules are promulgated pursuant to the jurisdiction and authority of the Board of Land and Natural Resources provided in Chapter 182 of the Hawaii Revised Statutes.

1.3 **Incorporation by Reference.**

Any document or part therein incorporated by reference herein is a part of these regulations as though set out in full.

1.4 **Revision.**

These regulations may be revised or repealed at any time by the Board in accordance with provisions of Chapters 91 and 182 of the Hawaii Revised Statutes. However, any revision to these regulations changing the rental or royalty due the State of Hawaii or changing the term of mining leases shall not adversely affect valid leases existing on the effective date of the revision.

1.5 **Legal Conlicts.**

Nothing in these regulations shall be construed as superseding Chapter 91, Chapter 182, Chapter 183-41, and Chapter 205, Hawaii Revised Statutes, as amended.

1.6 **Definitions.**

For purposes of these regulations, unless otherwise indicated herein by express term or by context, the term:

"Geothermal resources" means the natural heat of the earth, the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from, such natural heat, and all minerals in solution or other products
obtained from naturally heated fluids, brines, associated gases and stones, in whatever form, found below the surface of the earth, but excluding oil, hydrocarbon gas or other hydrocarbon substances.

"Board" means the Hawaii Board of Land and Natural Resources.

"Department" means the Hawaii Department of Land and Natural Resources.

"Chairman" means the Chairman of the Board of Land and Natural Resources.

"State lands" includes without limitation lands the surface rights to which are in the State of Hawaii and under the jurisdiction and control of the Board or under the jurisdiction and control of any other state body or agency, having been obtained from any source and by any means whatsoever.

"Reserved lands" includes lands the surface rights to which have been disposed of permanently, or under present contract or lease, or under lease, but all subject to a reservation to the State of Hawaii, expressly or by implication, of the minerals or right to mine minerals, or both.

Note: The statutory definitions for "State lands" and "Reserved lands" (Secs. 182-1 (3) and (4) appear to be adequate. A rephrasing of these defined terms in the regulations can only cause confusion in view of Rule 1.5.

"Person" means a United States citizen of legal age, or any firm, association or corporation which is qualified to do business in the State of Hawaii, and is not in default under the laws of the State of Hawaii, relative to qualifications to do business within this State, and governmental units.

"Occupier" means any person entitled to the possession of land under a certificate of occupation, a nine hundred and ninety-nine year homestead lease, a right of purchase lease, a cash freehold agreement, or under a deed, grant, or patent, and any person entitled to possession under a general lease, and also means and includes the assignee of any one of the above.

"Mining operations" means the process of drilling, extraction, and development of geothermal resources and any by-products, design engineering, other engineering, erection of transportation facilities and port facilities, erection of necessary structures, buildings, plants, and other necessary facilities connected with the development of geothermal resources.

"Mining lease" means a lease of the right to conduct geothermal mining operations on state lands and on other lands sold or leased by the State or its predecessors in interest with an expressed or implied reservation of mineral rights to the State.

"Operator" means the person having control or management of exploration or mining operations under a lease or permit.

"Well" means any well drilled for the purpose of exploration, discovery, observation, production, or injection of geothermal resources; or any converted producing well; or any reactivated or converted abandoned well.
"Suspension of operations" means the cessation of drilling, redrilling, or alteration of casing before the well is officially abandoned or completed.

1.7 Geothermal Policy.

With the adoption of these rules and regulations, it shall be the policy of the Board to encourage the exploration, development and use of geothermal resources in a manner that will provide for the optimum use of the land with appropriate protection of the environment and natural resources including geothermal, ground water, fish and wildlife, and forests.

RULE NO. 2

GEOTHERMAL EXPLORATION PERMITS

2.1 Exploration Permit Required.

No person shall explore by any means whatever on, in, or under any State lands or Reserved lands to detect, test, or assess geothermal resources without a permit issued pursuant to these regulations.

Note: Mr. Clause in the statement filed May 21, 1976 pointed out that there is no statutory authority for this Rule. We have amended it to be in accord with the law.

2.2 Application for Exploration Permits.

Any person may apply for an original, amended, or renewal exploration permit by submitting a written application to the Board. All applications must be signed by the applicant and shall be accompanied by all necessary exhibits. Maps shall be in reproducible form. An applicant may be required to show that all applicable State laws and regulations have been complied with up to the date of application.

Note: To aid and assist both the Department and the applicant it would be desirable if the Department provided a standardized printed form of application. Since Chapter 132 distinguishes between State lands and Reserved lands which seem to require different treatment with respect to an Occupier, both as to exploration permits and mining leases, consideration should be given to providing for separate applications for each type of land.

2.3 Permit Filing Fee.

Each application shall be accompanied by a non-refundable filing fee in the amount of $100.

2.4 Permit Application Exhibits.

The applicant shall submit as exhibits to the exploration permit application the following:

a. Evidence of insurance, naming the State of Hawaii and the applicant as co-insured, against liability for injury to the property and environment of the State of Hawaii, and the death or bodily injury of employees of the applicant. The amount of insurance coverage which must be evidenced is dependent upon the number of acres covered by the application, as follows:

One acre to 500 acres - $20,000, $40,000, $80,000.

Greater than 500 acres - $50,000, $100,000, $50,000.

Note: This insurance requirement is very unclear. Is the risk to be covered any different if the acreage is 499 acres or 501 acres? It would appear that it is not; hence, the distinction based on acreage is not realistic. In any event, the amount of insurance required for under 500 acres ($20,000-$40,000-$80,000) would appear to be too low. Most auto policies exceed this amount. We would suggest $100,000-$200,000-$400,000 for any application irrespective of acreage.

b. A corporate surety bond of not less than $1,000 conditioned upon compliance with all the terms on the exploration permit.
c. A plan of exploration describing planned exploration methods, dates of exploration, temporary construction, ingress and egress, types of equipment to be used, size and number of vehicular and other equipment to be used, and manpower requirements.

d. Detailed description of the area, including terrain, vegetative cover, State land use designation, county zoning, current land status and occupiers, if any.

e. Appropriate fax key maps and USGS 71-minute topographic quadrangle maps showing clearly and accurately the proposed area and sites of exploration.

Note: An essential tool used in geothermal exploration is the drilling of shallow temperature holes - 500'. Such shallow holes appear to be included in the term 'Well.' Rule 3.1 prohibits drilling "Wells" without a mining lease. Therefore, some provision should be made to exclude shallow temperature holes from the term 'Well' and allow the drilling of them under the exploration permit.

2.5 Number of Permits.

There are no limitations as to the number of permits which may be applied for by any one person.

2.6 Approval of Permit Applications:

The approval of an application for a geothermal exploration permit shall include, but not necessarily be limited to, the following procedures:

a. Upon receipt of an application for a geothermal exploration permit, the department shall cause copies of the application to be sent to the surface rights holder, occupier, and to affected State and local government agencies and to such other agencies or persons that the department deems appropriate.

b. The surface rights holder, occupier, and agencies shall be requested to respond within 30 days with a recommendation that the permit either be granted or denied. The department, surface rights holder, occupier and other government agencies may recommend conditions to be contained in the exploration permit to satisfy requirements within their respective statutory jurisdictions. Applicants will be advised on conditions recommended by State and local agencies and, when deemed advisable by the department, a conference between agencies and applicant will be held.

c. The department shall make such other investigations as it deems necessary.

d. If a State agency other than the department occupies the lands being applied for, such agency may recommend against granting a permit for geothermal exploration if it shows good reason that geothermal development subsequent to exploration would not be in the best public interest.

Note: Mr. Clause's comments on Rule 2.6 are still appropriate with respect to clarification and expansion. Our comments on Rule 2.2 dealing with separation of applications for State lands and Reserved lands could aid the procedures herein contemplated at least as to the occupier situation. We question the use of the new term "surface rights holder" since it appears to be included in and covered by the definition of "Occupier."

2.7 Duration of Permits.

Geothermal exploration permits shall expire two years from date of issuance; and at the discretion of the Board, may or may not be renewed for an additional two years.

2.8 Non-Exclusive Permits.

Geothermal exploration permits allow only non-exclusive access to land for geothermal exploration purposes.
The department may conduct scheduled and unannounced inspections and investigations of operations conducted under geothermal exploration permits.

2.10 Suspension of Permits.

The Chairman may issue an order immediately suspending operations conducted under a geothermal exploration permit if:

a. The permittee remains in violation of the regulatory requirements of the Department, the Office of Environmental Quality Control, the Hawaii Departments of Health, Labor and Industrial Relations, and Taxation, or other legally constituted authority, in excess of 30 days after notice in writing from the appropriate agency.

b. The permittee is in violation of any exploration permit terms or conditions which, in the judgment of the Chairman, jeopardizes the public health, safety, and welfare.

2.11 Cancellation of Permits.

The department may cancel a geothermal exploration permit if it finds, after notice to the permittee and allowance for an opportunity for hearing, that:

a. Permit requirements are not being observed after notification to the permittee.

b. False information was submitted in the application, application exhibits, or other required reports.

RULE NO. 3

GEOTHERMAL MINING LEASES

3.1 Geothermal Mining Leases Required.

No person shall drill for exploratory development or production or extract, develop, or dispose of any geothermal resource from any land owned, leased, or controlled by the State, or under contract or agreement with the State, without a mining lease issued under these rules and regulations.

Note: The words "by implication" create land title problems as pointed out in Mr. Clause's statement. We note that the same words appear in HRS Sec. 138-3; hence, cannot be ignored in the regulations. We feel this matter should be brought to the attention of the Attorney General for an opinion as to the legal effect of the words. In any event, Rule 3.1 can be shortened as indicated.

3.2 Geothermal Resources Available for Leasing.

All State and reserved lands shall be considered available for geothermal mining leases. The exceptions are:

- Such lands, except:...
3.3 Qualified Applicants.

Any person shall be qualified to lease the geothermal resources in State lands or reserved lands or take or hold an interest therein unless the Board first determines, after notice and hearing, that a person is disqualified from leasing or taking or holding an interest in geothermal resources in State lands or reserved lands. No member of the Board, the Chairman, or employee of the Department may take or hold any lease or interest in State lands.

3.4 Mining Leases by Public Auction.

All geothermal mining leases shall be issued upon a competitive bid basis at public auction, except as provided in Rule 3.5.

3.5 Mining Leases Without Public Auction.

In the case of reserved lands, the Board may grant a geothermal mining lease without public auction to the occupier thereof or his assignee of the rights to obtain a mining lease if approved by two-thirds of the voting members of the Board; otherwise, by public auction as provided in Sections 182-4 and 182-5 of Chapter 182, Hawaii Revised Statutes, and Rule 4 of these Regulations.

3.6 Size of Leasable Tract.

A geothermal mining lease shall be limited to any contiguous area of land not exceeding ten square miles; except that, as provided in Section 182-8, a mining lease shall be limited to four square miles of contiguous land if its boundaries are such that its longest dimension is six times or more its narrowest dimension.

3.7 Assignment of Mining Leases.

a. Any mining lease may be assigned in whole or in part, subject to the approval of the Board, to an assignee who shall have the same qualifications as any bidder for a mining lease. The assignee shall be bound by the terms of the lease to the extent as if the assignee were the original lessee. The approval of the assignment by the Board shall relieve the assignor from any liabilities or duties under the mining lease as to the lessee thereof assigned except for any liability or duty which arises prior to the approval of the assignment by the Board and which remains unsatisfied or unpaid.

b. No assignment shall be effective until written approval is given. An assignment shall take effect the first day of the month following the approval of the assignment.
c. A lease may be assigned as to all or part of the acreage included therein to any person qualified to hold a State lease, provided that neither the assigned nor the retained part created by the assignment shall contain less than 10 acres. No undivided interest in a lease of less than 10% shall be created by assignment.

d. In an assignment of the complete interest in all of the lands in a lease, the assignor and his surety shall continue to be responsible for performance of any and all obligations under the lease until the effective date of the assignment. After the effective date of any assignment, the assignee and his surety shall be bound by the terms of the lease to the same extent as if the assignee were the original lessee, any conditions in the assignment to the contrary notwithstanding.

e. An assignment of the record title of the complete interest in a portion of the lands in a lease shall clearly segregate the assigned and retained portions. After the effective date, the assignor is released and discharged from any obligations thereafter accruing with respect to the assigned lands. Such segregated leases shall continue in full force and effect for the primary term of the original lease or as further extended pursuant to the terms of these rules.

f. Where an assignment does not segregate the record title to the lease, the assignee, if the assignment is provided, may become a joint principal on the bond with the assignor. The application must also be accompanied by a consent of assignor's surety to remain bound under the bond of record, if the bond, by its terms, does not contain such consent. If a party to the assignment has previously furnished a statewide bond, no additional showing by such party is necessary as to the bond requirement.

g. An assignment must be a good and sufficient legal instrument, properly executed and acknowledged, and should clearly set forth the serial number of the lease, the land involved, the name and address of the assignor, the interest transferred and the consideration. A fully executed copy of the instrument of assignment must be filed with the application for approval. An assignment must affect or concern only one lease or a portion thereof, except for good cause shown.

h. The application for approval of an assignment must be on forms provided by the Department or exact copies. It must be accompanied by a signed statement by the assignee either (1) that he is the sole party in interest in the assignment, or (2) setting forth the names and qualifications of the other parties taking an interest in the lease. Where the assignee is not the sole party in interest, separate statements must be signed by each of the other parties and by the assignee setting forth the nature and extent of the interest of each party and the nature of the agreement between them. If payments out of production are reserved, a statement must be submitted stating the details as to the amount, method of payment, and other pertinent items. These separate statements must be filed in the office of the Department in Honolulu not later than fifteen (15) days after the filing of the application for approval.

1. If the lease account is not in good standing at the time the assignment is reached for action, the request for approval of the assignment will be denied, and the lease shall be subject to termination in accordance with Rule 3.8.
3.8 Revocation of Mining Leases.

A geothermal mining lease may be revoked if the lessee fails to pay rentals when due or if any of the terms of the lease or of law are not complied with, or if the lessee wholly ceases all mining operations without the written consent of the Board for other than reasons of force majeure or the uneconomic operation of the mining lease for a period of one year. However, the board shall give the lessee notice of any default and the lessee shall have six months from the date of the notice to remedy the default before revocation of the lease.

3.9 Surrender of Mining Leases.

Any lessee of a geothermal mining lease, who has complied fully with all the terms, covenants, and conditions of the existing lease, may, with the consent of the Board surrender at any time and from time to time all or any part of the mining lease or the land contained therein upon payment as consideration therefor two years' rent paid upon the portion of the lease or land surrendered and as otherwise specified in Section 182-15 of Chapter 182, HRS. A geothermal mining lease may also be surrendered if as a result of a final determination by a court of competent jurisdiction, the lessee is found to have acquired no rights in or to the minerals on reserved lands, nor the right to exploit the same.

Note: Rules 3.8 and 3.9 can lead to some rather odd situations. Under Rule 3.8 a lessee who has fully complied with the lease terms is required to pay a penalty of two years' rental for the privilege of voluntarily surrendering a lease or portion thereof. Under Rule 3.9 a lessee may default on his rental payments and only suffer termination of his lease. Obviously, any lessee desiring to surrender a lease would simply go in default and save the payment of two years' and, in addition, does not need the consent of the Board to surrender. We recognize that these Rules are in accord with the statute; however, it is a strange law which penalizes a complying lessee and appears to void a penalty for a defaulter. Amendatory legislation is desirable.

3.10 Number of Mining Leases.

There shall be no limit upon the number of geothermal mining leases that may be granted to any person undertaking any geothermal mining operation, as specified in Section 182-8 of Chapter 182, Hawaii Revised Statutes.

3.11 Geothermal Mining Lease Terms.

The terms and conditions of all geothermal mining leases shall be approved by the Board as provided in Chapter 182 and as the Board may in addition deem appropriate or in the public interest.

3.12 Duration of Geothermal Mining Leases.

a. The primary term of a geothermal mining lease shall be ten years from the effective date of the lease. The effective date of the lease shall be the first day of the month in which the lease is auctioned or in which the Board formally approves the issuance of a lease.

b. If, at the expiration of the primary term of the lease, geothermal resources are not being produced or demonstrably capable of being produced from the leased land, but the lessee is actively engaged in drilling operations to 1,000 feet or deeper, then the lease shall continue in force so long as drilling operations are being diligently and continuously prosecuted on the leased land or upon lands with which the leased land is utilized. Drilling operations shall be considered to be diligently and continuously prosecuted if not more than 120 days shall elapse between the completion or abandonment of one well and the beginning of operations for the drilling of another well. For good cause shown, the Chairman may extend the time for an additional period, not to exceed 120 days. A written request must be received by the Chairman at least 10 calendar days before the expiration of the initial 120-day period.
If at the expiration of the primary term of the lease, geothermal resources are being produced or utilized in paying quantities, that lease shall continue for so long thereafter as geothermal resources are produced or utilized in paying quantities, but the duration of the lease shall in no event continue for more than 55 years after the end of the primary term. Production or utilization of geothermal resources in paying quantities shall be deemed to include the completion of one or more wells producing or capable of producing geothermal resources for delivery to or utilization by a facility or facilities not yet installed, but scheduled for installation.

d. Lessee shall use due diligence to market or utilize geothermal resources in paying quantities. If leased land is capable of producing geothermal resources in paying quantities, but production is shut-in, the lease shall continue in force upon payment of rentals for the duration of the primary term or five (5) years after shut-in, whichever is longer. If the Chairman determines that the lessee is proceeding diligently to acquire a contract to sell or to utilize the production or is progressing with installations needed for production, the lease shall continue in force for an additional five (5) years, upon payment of rentals, otherwise the lease may be terminated by the Board. The Chairman shall continue to review shut-in leases every five (5) years until production and payment of royalties takes place or the lease is terminated by the Board for lessee’s lack of due diligence or surrender by the lessee.

3.11 Rentals.

a. Lessee shall pay to the State of Hawaii in advance each year the annual rental bid for each acre or fraction thereof under lease. The annual rental for the first year of the term shall be due and payable and shall be received in the offices of the Department in Honolulu, together with a lease agreement executed by lessee within thirty (30) days of the date of notice of approval or award. The Department will notify the applicant or his representative designated in the application of the lease by certified mail of the conditions of geothermal resources. Any approved and executed lease shall contain the exact amount of rental due thereon and the bond requirement under Rule 3.16. Failure to return an executed lease together with the first year rental and bond within thirty (30) days shall result in automatic rejection of the application without further action of the Chairman or Board. Second year and subsequent rental payments must be received in the office of the Department in Honolulu not before the anniversary date of the lease. Failure to pay exact rental shall constitute grounds for immediate termination of the lease by the Chairman who shall note the termination on the official records of the Department.

Note: The underlined material appears to be inconsistent with Rule 3.6. Please note Mr. Clause's comment on this Rule 3.11.
b. Annual rentals for each acre or fraction thereof under lease shall be at the price bid at a public auction based on an upset price as follows:

- $1.00/yr. - for the first five (5) years;
- $2.00/yr. - for the second five (5) years;
- $3.00/yr. - thereafter;

which rental shall be deducted from production royalties as they accrue during that lease year, if there be any. The rental shall not be recoverable from future production.

3.14 Royalties.

a. The lessee shall cause to be paid to the State of Hawaii the following royalties on the value of geothermal production from the leased premises:

1. A royalty of 10 per centum of the amount or value of geothermal resources, or any other form of heat or energy derived from production under the lease and sold or utilized by the lessee or reasonably susceptible to sale or utilization by the lessee, unless used or consumed by lessee in his production operations;

2. A royalty of 5 per centum of the amount or value of any associated by-product derived from production under the lease and sold or utilized or reasonably susceptible to sale or utilization by the lessee, including commercially demineralized water, except that no payment of a royalty will be required on such water if it is used in plant operation for cooling or in the generation of electric energy or otherwise. No royalty shall be paid for associated by-products used or consumed by lessee in his production operations.

b. The value of geothermal production from the leased premises for the purpose of computing royalties shall be the following:

1. The total consideration accruing to the lessee from the sale thereof in cases where geothermal resources are sold by the lessee to another party in an arm's-length transaction; or

2. The value of the end product attributable to the geothermal resource produced from a particular lease where geothermal resources are not sold by the lessee before being utilized, but are instead directly used in manufacturing power production, or other industrial activity; or

3. When a part of the resource only is utilized by the lessee and the remainder sold, the sum of (1) and (2) immediately above.

Note: The most likely use for geothermal resources in Hawaii is the generation of electric power. To reach this end, it is required that substantial investment be incurred to beneficiate the resource to arrive at electric power. It does not seem appropriate that royalties should be based upon the value of the electric power generated by the plant itself whether by a lessee or a third party. The value of the geothermal resources at the time they are delivered to the plant can be determined other than by the value of the end product and should be the measure of value upon which royalties are paid.

c. Lessees shall within 15 days notify the Chairman of the discovery upon the leased premises of geothermal resources before any such geothermal resources are used or removed for commercial purposes from the leased land or utilized thereon.

d. Royalties will be due and payable monthly in the office of the Department in Honolulu on or before the last day of the calendar month following the month in which the geothermal resources and/or their associated by-products are produced and utilized or sold.
e. The lessee shall file with the Chairman within thirty (30) days after execution a copy of any contract for the disposal of geothermal resources from the lease. Reports of sales or utilization by lessee and royalty for each productive lease must be filed each month once production begins, even though production may be intermittent, unless otherwise authorized by the Chairman. Total volumes of geothermal resources produced and utilized or sold, including associated by-products, the value of production, and the royalty due the State of Hawaii must be shown. This report is due on or before the last day of the month following the month in which production was obtained and sold or utilized, together with the royalties due the State of Hawaii.

f. The lessee shall measure or gauge all production in accordance with methods approved by the Chairman. The quality and quality of all production shall be determined in accordance with the standard practices, procedures and specifications generally used in industry. All measuring equipment shall be tested consistent with industry practice and, if found defective, the Chairman will determine the quantity and quality of production from the best evidence available.

g. The lessee shall periodically furnish the Chairman the results of periodic tests showing the content of by-products in the produced geothermal resources. Such tests shall be taken as specified by the Chairman and by the method of testing approved by him, except that tests not consistent with industry practice shall be conducted at the expense of the State of Hawaii.

h. The Board may authorize a lessee to commingle production from wells on his lease with production from other leases held by him or by other lessees subject to such conditions as he may prescribe, but lessee shall not do so without the Board’s approval.

Note: When geothermal resources are produced for the generation of electric power, it is almost essential that commingling of the resources from several wells take place prior to delivery to the generating plant. Consideration should be given to allowing commingling as a matter of right unless prohibited by the Board after an appropriate hearing.

3.15 Overriding Royalty Interests.

a. Overriding royalty interests in geothermal leases constitute accountable acreage holdings under these rules. If an overriding royalty interest is created which is not shown in the instrument of assignment or transfer, a statement must be filed with the Chairman describing the interest. Any such assignment will be deemed invalid if accompanied by a statement over the assignor’s signature that the assignor is a person as defined in these rules and that his interests in geothermal leases do not exceed the acreage limitations provided in these rules. All assignments of overriding royalty interests without a working interest and otherwise not contemplated by Rule 3.7 must be filed for record in the office of the Department in Honolulu within ninety (90) days from the date of execution. Such interests will not receive formal approval.

Note: This provision appears to be taken from the Federal Rules which have guidelines with respect to accountable acreage holdings. Accountable acreage holdings in Hawaii are negated by Rule 3.15. We have made the appropriate deletions to correct this situation.

b. No overriding royalty on the production of geothermal resources created by an assignment contemplated by Rule 3.7 or otherwise shall exceed 5 percent nor shall an overriding royalty, when added to overriding royalties previously created, exceed 5 percent.

c. The creation of an overriding royalty interest that does not conform to the requirements of this rule shall be deemed a violation of the lease terms, unless the agreement creating overriding royalties provides for a proportionate reduction of all overriding royalties so that the aggregate rate of overriding royalties does not exceed 5 percent.
d. In addition to the foregoing limitations, any agreement to create or any assignment creating royalties or payments out of production from the leased lands shall be subject to the authority of the Chairman, after notice and hearing, to require the proper parties thereto to suspend or modify such royalties or payments out of production in such manner as may be reasonable when and during such periods of time as they may constitute an undue economic burden upon the reasonable operations of such lease.

Note: We assume the word "royalties" set forth in d. is meant to mean overriding royalties which are adequately covered in the foregoing provisions of this Rule since "royalties" can only be created by the State itself. Payments out of production are generally considered to be business decisions of the lessee generally for the purpose of obtaining financing for the operation and, as such, should not be subject to the approval of the Chairman.

3.16 Bond Requirements

a. Performance Bonds: Concurrent to the execution of the lease by the lessee, lessee shall furnish to Chairman a good and sufficient bond in the amount of Two Thousand Dollars ($2,000.00) in favor of the State of Hawaii, conditioned on the payment of all damages to the land surface and all improvements thereon, including without limitation crops on the lands, whether or not the lands under this lease have been sold or leased by the Board for any other purpose; conditioned also upon compliance by lessee of his obligations under this lease and these rules. Prior to initiation of operations to drill a well for any purpose, lessee shall increase such bond to the amount of Ten Thousand Dollars ($10,000.00). The Chairman may require a new bond in a greater amount at any time after operations have begun, upon a finding that such action is reasonably necessary.

b. Statewide Bond: In lieu of the aforementioned bonds, lessee may furnish a good and sufficient "statewide" bond conditioned as above in the amount of Fifty Thousand Dollars ($50,000.00) in favor of the State of Hawaii, to cover all lessee's leases and operations carried on under all Geothermal Mining leases issued and outstanding to lessee by the Board at any given time during the period when the "statewide" bond is in effect.

c. Operator's Bond: An operator or each operator, if more than one on different portions of a lease, may furnish a general lease bond of not less than Ten Thousand Dollars ($10,000.00) in his own name as principal on the bond in lieu of the lessee. Where there is more than one operator's bond affecting a single lease, each such bond must be conditioned upon compliance with all lease terms for that portion of the leasehold for which each operator is responsible. Where a bond is furnished by an operator, suit may be brought thereon without joining the lessee if he is not a party to the bond.

d. Duration of Bonds: The period of liability of any bond will not be terminated until all lease terms and conditions have been fulfilled and the bond is released in writing by the Chairman.

3.17 Liability Insurance.

Prior to entry upon the leased lands, lessee shall cause to be secured and to be thereafter maintained in force during the term of this lease, public liability and property damage insurance and products liability insurance in the sum of Two Hundred and Fifty Thousand Dollars ($250,000.00) for injury or death for each occurrence; in the aggregate sum of Five Hundred Thousand Dollars ($500,000.00) for injury or death; and in the sum of One Hundred Thousand Dollars ($100,000) for damages to property and products damage caused by any occupant, use, operations or any other activity on leased lands carried on by lessee, its agents or contractors in connection therewith.
Explosion, collapse and underground hazards are to be included prior to initiation of operations to drill a well to 1,000 feet or deeper. Lessee shall evidence such additional coverage to the Chairman prior to initiation of drilling operations. If the land surface and improvements thereon covered by the lease have been sold or leased by the State of Hawaii, the owner or lessee of surface rights and improvements shall be a named insured. The State of Hawaii shall be a named insured in all instances. This policy or policies of liability insurance shall contain the following special endorsement:

"The State of Hawaii, the Hawaii State Board of Land and Natural Resources, the Chairman of the Board of Land and Natural Resources, the Department of Land and Natural Resources, and (herein insert name of owner or lessee of surface rights, if applicable) and the officers, employees and agents of each and every of the foregoing (hereinafter referred to as "additional insured") are additional insureds under the terms of this policy, provided, however, the additional insureds shall not be insured hereunder for any primary negligence or misconduct on their part, but additional insureds shall be insured hereunder for secondary negligence or misconduct, which shall be limited to the failure to discover and cause to be corrected the negligence or misconduct of lessee, its agents or contractors. This Insurance policy will not be cancelled without thirty (30) days prior written notice to the Hawaii Department of Land and Natural Resources. None of the foregoing additional insureds is liable for the payment of premiums or assessments on this policy."

No cancellation provision in any insurance policy shall be in derogation of the continuous duty of lessee to furnish insurance during the term of this contract. Said policy or policies shall be underwritten to the satisfaction of the Chairman. A signed complete certificate of insurance, with the endorsement required by this paragraph, shall be submitted to the Chairman prior to entry upon the leased land. At least thirty (30) days prior to the expiration of any such policy, a signed complete certificate of insurance, with the endorsement required by this paragraph, showing that such insurance coverage has been renewed or extended, shall be filed with the Chairman.

3.18 Hold Harmless.

Lessee shall expressly agree that the State of Hawaii, the Board, the Chairman, the Department, and the owner of the surface rights and improvements, if not the State of Hawaii, or State lessee of surface rights, if there be one, the officers, agents and employees of each and every one of the foregoing, shall be free from any and all liabilities and claims for damages and/or suits for or by reason of death or injury to any person or damage to property of any kind whatsoever, whether the person or property of lessee, its agents or employees, or third persons, from any cause or causes whatsoever caused by any occupancy, use, operation or any other activity on leased lands carried on by lessee, its agents or contractors, in connection therewith; and lessee shall covenant and agree to indemnify and to save harmless the State of Hawaii, the Board, the Chairman, the Department, owner or lessee of surface rights if there be one, and their officers, agents, and employees from all liabilities, charges, expenses (including counsel fees), and costs on account of or by reason of any such death or injury, damage, liabilities, claims, suits or losses.
Title.

The State of Hawaii does not warrant title to the leased lands or the geothermal resources and associated by-products which may be discovered thereon; the lease is issued only under such title as the State of Hawaii may have as of the effective date of the lease or thereafter acquire. If the interest owned by the State in the leased lands includes less than the entire interest in the geothermal resources and associated by-products for which royalty is payable, then the royalties provided for in the lease shall be paid to the State only in proportion which its interest bears to said whole and undivided interest in said geothermal resources and associated by-products for which royalty is payable; provided, however, that the State is not liable for any damages sustained by the lessee, nor shall the lessee be entitled to or claim any refund of rentals or royalties therefore paid to the State in the event that the State does not own title to said geothermal resources and associated by-products, or if its title thereto is less than whole and entire.

Note: Under the usual lesser interest clause, if the State has less than the entire interest, then both royalties and rental should be reduced proportionately. This Rule provides for the reduction of royalties, and we believe it should also provide for a proportionate reduction in rental. The underlined material does not appear to be in conformance with Section 182-13, which provides that the State would reimburse for rentals paid to the State under the lease if the State does not have title to the lands.

RULE 4

PROCEDURES FOR LEASING ON STATE LANDS

4.1 Application to Board.

Any person may apply for a geothermal mining lease on lands described in Rule 3.2. The applicant shall submit three copies of a written application on forms provided by the Department and all application forms must be completed in full, signed by the applicant or his authorized representative with proof of authorization, three (3) copies of all necessary exhibits, and the filing fee.

4.2 Lease Application Filing Fee.

Each application for a geothermal mining lease shall be accompanied by a nonrefundable filing fee in the amount of $100.00.

4.3 Lease Application Exhibits.

Each application for geothermal mining lease shall be accompanied by the following exhibits:

a. An accurate description and map of the land desired to be leased.

b. Description of the known geothermal resource.

c. A geologist's report on the surface and sub-surface geology, faulting, nature of the geothermal resource, surface water resources, and ground water resources; and opinion on probability of adverse effects from geothermal resource development.

Note: Our comments on Rule 3.2 apply to b. and c. above. It may be very impossible for anyone to give a description of the known geothermal resource or the nature thereof if it is a "hidden trap" situation.

d. A detailed description of the proposed geothermal drilling, mining and development proposed for leasing; proposals for monitoring and surveillance of the drilling, mining and development; and protection of ground water and other natural resources, and the environment.

e. An assessment of the environmental impact of the mining proposal.
f. A copy of a valid geothermal exploration permit issued to the applicant for the area sought to be leased.

Note: Rule 4.1 provides "any person may apply for a geothermal mining lease." However, f. above requires a valid geothermal exploration permit. The statutory provision in Section 182-4 says that any interested person may notify the Board of his intention to apply for a mining lease. Between these inconsistencies, it is difficult to determine who may or how to apply for a geothermal mining lease.

g. Such other information as the Department advises the applicant to be necessary.

4.4 Incomplete Application.

Applications which are incomplete as to identity of applicant, signature of applicant, not accompanied by the established filing fee, or not accompanied by all of the required application exhibits shall be returned to the applicant with an explanation of the reasons for incompleteness.

4.5 Consideration of Application.

Upon receipt by the Department of a satisfactorily completed notice of application for geothermal mining lease, the Board shall consider the merits of the application and its accompanying exhibits and shall either reject it with an explanation of the reasons for rejection or accept it for further consideration.

4.6 Consideration by Others.

The acceptance of an application for further consideration by the Board shall include, but not necessarily be limited to, the following procedures:

a. Upon acceptance of an application for further consideration by the Board, the Department shall cause copies of the application with accompanying exhibits to be sent to the surface rights holder or occupier and to affected State and County agencies including the Office of Environmental Quality Control, Department of Planning and Economic Development, Department of Health, the affected County Planning Department, and to such other agencies or persons that the Board deems appropriate.

b. The surface rights holder or occupier and agencies shall be requested to respond within 30 days with a recommendation for or against the applicant's mining lease proposal. Agencies may also recommend conditions to be contained in the lease to satisfy requirements within their respective statutory jurisdiction. Such conditions recommended by affected agencies may, if the Board deems appropriate, be made a part of any lease granted.

c. The Department shall make any other investigations it deems appropriate.

Note: Mr. Clause's comments on Rule 4.6 are appropriate.

4.7 Public Notice of Lease Application.

Upon preliminary acceptance of an application for a geothermal mining lease as stated in Rule 4.5, the Board shall cause a notice to be published in the newspaper of general circulation in the County where the lands are located, at least once in each of three successive weeks describing the lands for which a mining lease is requested, the geothermal resources desired to be leased, and the applicant's proposed mining operation. The public shall also be notified of its opportunity to review the applicant's application for a geothermal mining lease and submit written comments to the Department.

Note: This Rule will have the effect of negating any geothermal exploration in the State of Hawaii. No responsible operator will be inclined to expend substantial sums of money obtaining the information required under the application for a lease so that that information will be made available to the public or his competitors. Some period of confidentiality as set forth in Section 182-6 should be incorporated in these regulations with respect to the information furnished to the Board on an application. In addition, there does not appear to be any limitation upon the time within which the public has the opportunity to review the applicant's application. This would appear to be unreasonable.
Upon receipt of all information requested and obtained by investigation, the Board, as soon as practicable, shall determine whether or not the proposed mining operation and lands to be leased would be of greater benefit to the State than the existing or reasonably foreseeable future use of the land being applied for. If the Board determines that the existing or reasonably foreseeable future use of the land being sought for lease would be of greater benefit to the State than the proposed mining use of the land, it shall disapprove the application for a mining lease of the land without putting the land to auction.

Note: Mr. Clause's comments on this Rule are incorporated herein.

4.9 Approval of Mining Lease by Public Auction.

If the Board determines that the proposed mining use of the land would be of greater benefit to the State than the existing or reasonably foreseeable future use of the land sought to be auctioned, the Board shall cause a notice of public auction to be published in a newspaper of general circulation in the State at least once in each of three successive weeks, setting forth the description of the land, the minerals to be leased, and the time and place of the auction. At least 30 days prior notice shall be given.

4.10 Public Auction of Mining Lease.

The Board shall determine the area to be offered for a geothermal mining lease and may modify the boundaries of the land area sought to be leased, after due notice of public hearing to all parties and interests. The Board shall approve the mining lease to be offered by public auction and shall set the terms and conditions of the lease as provided in Chapter 182 and as it may additionally deem appropriate. Bidders shall bid on the amount of annual rental for each acre or fraction thereof to be paid for the term of the mining lease based on an upset price as follows:

- $1.00 per year per acre, for the first five years;
- $2.00 per year per acre, for the second five years;
- $3.00 per year per acre, thereafter.

5.1 Application to Board.

Applications for geothermal mining lease on reserved lands, that is, lands owned or leased by any person in which the State has reserved to itself expressly or by implication the geothermal resources or right to mine geothermal resources, or both, shall be made to the Board in accordance with Rule 4.1 through 4.8.

Note: See our comment under Rule 3.1.

5.2 Approval of Mining Lease by Public Auction.

a. If an application for a geothermal mining lease on reserved lands has followed Rules 4.1 to 4.8 and the Board has determined that for such application the proposed geothermal mining use of the land would be of greater benefit to the State than the existing or reasonably foreseeable future use of the land
sought to be leased, the Board has the option of approving the granting of the mining lease: (1) by public auction in accordance with Rule 5.2(b); (2) without public auction in accordance with Rule 5.3.

b. If the occupier or his assignee of the right to obtain a mining lease should fail to apply for a mining lease within six months from the date of notice from the Board of its finding that it is in the public interest that the geothermal resources in the reserved lands be mined, a mining lease shall be granted by public auction under Rule 4 and the bidders at the public auction shall bid on an amount to be paid to the State for a mining lease granting to the lessee the right to develop the geothermal resources reserved to the State.

Note: Mr. Clause's comments on Rules 5.1 and 5.2 are appropriate.

5.3 Approval of Mining Lease Without Public Auction.

The Board may, by the vote of 2/3 of the voting members, grant a geothermal mining lease on reserved lands to the occupier thereof without public auction. Such a mining lease may be granted to a person other than the occupier if the occupier has assigned his rights to apply for a lease to another person, in which case only such an assignee may be granted a geothermal mining lease.

RULE 6

SURFACE RIGHTS AND OBLIGATIONS

6.1 Compensation to Occupiers.

a. The occupier of State or reserved lands leased by the Board shall be entitled to a reasonable rental from the mining lessee for the use of the surface for exploration and mining operations. Also, if the occupier suffers damage to his crops, his improvements, or the surface condition of the land caused by exploration and mining operations or by the failure of the mining lessee to properly restore the land after termination of operations, the occupier shall be reimbursed the full extent of the damages by the mining lessee; provided, that the occupier was not granted a mining lease without public auction as provided in Rule 5.3.

b. Before entering upon the leased lands for exploration or mining operations, the lessee of a mining lease must complete a satisfactorily written agreement with any occupier concerning rentals and damages to be paid to the occupier due to any exploration or mining operations, and such agreement must be approved by the Board.

Note: We could not find any statutory provision requiring that an agreement between the mining lessee and the occupier must be approved by the Board. It would appear that this is a matter of private contract; and if the parties are satisfied, so should be the Board after notification of agreement between the parties.

c. However, any occupier of lands leased or to be leased by the Board shall have until thirty (30) days after the public auction of such lands, the option to notify the Board in writing of his or their desire to determine by arbitration the amount of rentals and damages to be paid to the occupier by the successful bidder or mining lessee. Such arbitration shall be in accordance with Chapter 658 of the Hawaii Revised Statutes.

6.2 Mining Lessee's Rights.

The lessee shall be entitled to use and occupy only so much of the surface of leased lands as may be required for all purposes reasonably incident to exploration for, drilling for, production and marketing of geothermal
6.3 General Conditions.

a. A mining lease shall not be construed to prohibit the leasing of the leased lands by the Board to other persons for grazing and agricultural purposes, or for the mining of minerals other than geothermal resources; provided that the lessee under a mining lease shall have paramount right as against grazing and agricultural lessees to the use of so much of the surface of the land as shall be necessary for the purposes of the mining lease. All lessees shall have the right of ingress and egress at all times during the term of the lease.

Note: What happens to a geothermal mining lessee if a subsequent mining lease is granted and the lessee thereof undermines all of the installation and operations of the geothermal mining lessee?

Again, without attempting to be repetitive, we should point out that attempting to handle geothermal resource development under a mining law creates not only a difficulty with respect to terms such as "mining lessee" but also does not properly regulate the rights and duties of the various mining lessees, vis-a-vis, each other.

b. Use of State lands under the jurisdiction and control of the Board are subject to the supervision of the Chairman. Use of State lands under the control of other State agencies are subject to the supervision of the appropriate State agency consistent with these rules.

c. The Board reserves the right to sell or otherwise dispose of the surface of the lands embraced within a mining lease, insofar as said surface is not necessary for use by the lessee in his exploration, development and production of the geothermal resources and associated by-products, but any sale of surface rights made subsequent to execution of a mining lease shall be subject to all the terms and provisions of that lease during the life thereof.

d. The Chairman shall be permitted at all reasonable times to go in and upon the leased lands and premises, during the term of a mining lease, to inspect the operations and the products obtained from the leased lands and to post any notice that the Chairman may deem fit and proper.

e. During operations, the lessee shall regulate public access and vehicular traffic to protect human life, wildlife, livestock and property from hazards associated with the operations. For this purpose, the lessee shall provide warnings, fencing, flumes, barricades, well and hole coverings and other safety measures as appropriate. Restrictions on access must be approved by the Chairman as part of the Plan of Operations required under Rule 7.2.

f. The mining lessee shall reclaim all State lands disturbed by exploration, development, operation and marketing of geothermal resources in accordance with lease terms and all State and local laws and regulations, existing and hereafter amended. Lessee shall conserve, segregate, stockpile and protect topsoil to enhance reclamation. Lessee shall take all necessary steps in the exploration, development, operation and marketing of geothermal resources to avoid a threat to life or property or an unreasonable risk to subsurface, surface or atmospheric resources.
7.1 General Terms.

a. The operator of a lease or a permit shall conduct all operations in a manner that will conform to the best practices and engineering principles in use in the industry. Operations shall be conducted in such a manner as to protect the natural resources including without limitation, geothermal resources, and to obtain efficiently the maximum ultimate recovery of geothermal resources consistent with other uses of the land with minimal impact on the environment. Operations shall be conducted with due regard for the safety and health of employees. The operator shall promptly remove from the leased lands or store, in an orderly manner, all scraps or other materials not in use and shall notify the Chairman of all accidents within 24 hours and submit a written report within 30 days.

b. The operator of a lease or permit shall comply with and be subject in all respects to the conditions, limitations, penalties and provisions of the laws of the United State, the State of Hawaii and all valid ordinances of the city and counties applicable thereto.

c. The operator of a lease or permit shall take all reasonable precautions to prevent waste and damage to any natural resource including vegetation, forests, and fish and wildlife; injury or damage to persons, real or personal property; and degradation of the environment. The Chairman may inspect lessee's operations and issue such orders as are necessary to accomplish these purposes.

d. The Chairman is authorized to shut down any operation which he determines are unsafe or are causing or can cause pollution of the natural environment or waste of natural resources including geothermal resources upon failure by lessee to take timely, corrective measures previously ordered by the Chairman.

e. When required by the Chairman, the lessee shall designate a local representative empowered to receive service of civil or criminal process, and notices and orders of the Chairman issued pursuant to these rules.

f. In all cases where exploration or mining operations are not to be conducted by the lessee but are to be conducted under authority of an approved operating agreement, assignment or other arrangement, a designation of operator shall be submitted to the Chairman prior to commencement of operations. Such a designation will be accepted as authority of the operator or his local representative to act for the lessee and to sign any papers or reports required under these rules. All changes of address and any termination of the authority of the operator shall be immediately reported, in writing, to the Chairman.
7.2 Plan of Operations Required.

A lessee or permittee shall not commence operations of any kind whether for exploration, observation, assessment, development or other related mining activities prior to submitting to the Chairman and obtaining his approval of a Plan of Operations. Such a plan shall include:

a. The proposed location and elevation above sea level of derrick, proposed depth, bottom hole location, casing program, proposed well completion program and the size and shape of drilling site, excavation and grading planned, and location of existing and proposed access roads.

b. Existing and planned access, access controls and lateral roads.

c. Location and source of water supply and road building material.

d. Location of camp sites, air-strips and other supporting facilities.

e. Other areas of potential surface disturbance.

f. The topographic features of the land and the drainage patterns.

g. Methods for disposing of waste material.

h. A narrative statement describing the proposed measures to be taken for protection of the environment, including, but not limited to the prevention or control of (1) fires, (2) soil erosion, (3) pollution of the surface and ground water, (4) damage to fish and wildlife or other natural resources, (5) air and noise pollution, and (6) hazards to public health and safety during lease activities.

i. All pertinent information or data which the Chairman may require to support the Plan of Operations for the utilization of geothermal resources and the protection of the environment.

j. Provisions for monitoring deemed necessary by the Chairman to insure compliance with these rules for the operations under the plan.

k. The information required above for items (a) through (f) may be shown on a map or maps of 1:24,000 scale or larger.

7.3 Amendments to Plan of Operations.

An amended Plan of Operations shall be submitted by the operator for the Chairman's approval prior to any changes in operations, such as drilling deeper, plugging back a well, redrilling, perforating of casing, installation of generating plants, buildings, pipelines, roads, plants or structures for the production, marketing or utilization of geothermal resources.

7.4 Drilling Operations.

a. Upon commencement of drilling operations, the lessee or permittee shall mark each derrick and each completed well in a conspicuous place with his name or the name of the operator, the lease number and the number of the well. The lessee shall take all necessary means and precautions to preserve these markings.
b. The lessee or permittee shall diligently take all necessary precautions to keep all wells under control at all times; utilize trained and competent personnel; utilize properly maintained equipment and materials; and use operating practices which insure the safety of life and property. The selection of the types and weights of drilling fluids and provisions for controlling fluid temperatures, blowout preventers and other surface control equipment and materials, casing and cementing programs, etc., to be used shall be based on sound engineering principles and shall take into account apparent geothermal gradients, depths and pressures of the various formations to be penetrated and other pertinent geologic and engineering data and information about the area.

c. When necessary or advisable, the Chairman shall require that adequate samples be taken and tests or surveys be made using techniques consistent with industry practices, without cost to the State of Hawaii, to determine the identity and character of geologic formations; the quantity and quality of geothermal resources; pressures, temperatures, rate of heat and fluid flow; and whether or not operations are being conducted in a manner of best interest of the public.

d. Before any work is commenced to abandon any well, notice shall be given by the operator to the Chairman, which notice shall show the condition of the well and the proposed method of abandonment. No well may be abandoned without prior approval of the Chairman. However, the operator of a lease or permit shall promptly plug and abandon any well that is not used or deemed useful by the Board. No production well shall be abandoned until its lack of capacity for further profitable production of geothermal resources has been demonstrated to the satisfaction of the Chairman. A productive well may be abandoned only after receipt of written approval by the Chairman. Equipment shall be removed, and premises at the well site shall be restored as near as reasonably possible to its original condition immediately after plugging operations are completed on any well except as otherwise authorized by the Chairman. Drilling equipment shall not be removed from any well where drilling operations have been suspended without taking adequate measures to close the well and protect subsurface resources. Upon failure of lessee or permittee to comply with any requirements under this rule, the Chairman is authorized to cause the work to be performed at the expense of lessee or permittee and the surety.

7.5 Waste Prevention.

a. All mining leases shall be subject to the condition that the lessee will, in conducting his exploratory development and producing operations, use all reasonable precautions to prevent waste of geothermal resources and other natural resources found or developed in the leased lands.

b. The lessee shall, subject to the right to surrender the lease, diligently drill geothermal production wells on the leased lands as are necessary to protect the Board from loss by reason of geothermal production on other properties; or in lieu thereof, with the consent of the Chairman shall pay a sum determined by the Chairman as adequate to compensate the Board for failure to drill and produce any such wells on the leased lands. The lessee shall promptly drill and produce such other wells as the Chairman determines a reasonably prudent operator would drill in order that the lease be developed and produced in accordance with good operating practices.
c. The Chairman shall determine the value of production accruing to the Board where there is loss through waste or failure to drill and produce protection wells on the lease, and the compensation due to the Board as reimbursement for such loss. Payment for such losses will be made when billed.

d. Subject to lessee's right to surrender the lease, where the Chairman determines that production, use or conversion of geothermal resources under a geothermal lease is susceptible of producing a valuable by-product or by-products, including commercially demineralized water contained in or derived from such geothermal resources for beneficial use in accordance with applicable State water laws, the Chairman shall require substantial beneficial production or use thereof, except where he determines that:

1. Beneficial production or use is not in the interest of conservation of natural resources;

2. Beneficial production or use would not be economically feasible; or

3. Beneficial production and use should not be required for other reasons satisfactory to him.

7.6 Protection of Other Resources.

a. The lessee or permittee shall remove the derrick and other equipment and facilities within sixty (60) days after lessee or permittee has ceased making use thereof in its operations.

b. All permanent operating sites where required shall be landscaped or fenced so as to screen them from public view as far as possible. Such landscaping or fencing shall be approved in advance by the state and kept in good condition.

c. All drilling and production operations shall be conducted in such manner as to eliminate as far as practicable dust, noise, vibration, or noxious odors. Operating sites shall be kept neat, clean and safe. Drilling dust shall be controlled to prevent widespread deposition of dust. Detrital material deposited on trees and vegetation shall be removed. The determination as to what is detrimental is a state responsibility.

d. Wastes shall be discharged in accordance with all Federal, State and local requirements and prohibitions.

e. Any operations disturbing the soil surface, including road building, construction, and movement of heavy equipment in support of or relating to specific geothermal exploration or development activities shall be conducted in such manner as will not result in unreasonable damage to trees and plant cover, soil erosion, or degradation of water resources of the State.

f. Existing roads and bridges on or serving the area under lease or permit shall be maintained in a condition equal to or better than that before use. New roads and bridges shall be located, constructed, and maintained in accordance with state specifications.

g. Timber damaged, destroyed, or used on the area under lease or permit shall be compensated for at market value to the state. Borrow pit material shall not be obtained from state lands without permission and payment of market value.
h. Improvements, structures, telephone lines, trails, ditches, pipe-lines, water developments, fences and other property of the state or other lessees or permittees, and permanent improvements and crops of surface owners, shall be protected from damage and repaired or replaced when damaged.

i. Access to drilling or production sites by the public shall be controlled by the lessee or permittee to prevent accidents or injury to persons or property.

j. Drilling mud shall be ponded in a safe manner and place, and where required by the state, posted with danger signs, and fenced to protect persons or property.

k. Areas cleared and graded for drilling and production facility sites shall be kept to a reasonable number and size, and be subject to state approval.

l. Lessee or permittee shall conduct its operations in a manner which will not interfere with the right of the public to use of public lands and waters.

7.7 Suspension of Operations.

In the event of any disaster or of pollution caused in any manner or resulting from operations under a lease or permit, lessee or permittee shall suspend any drilling and production operations, except those which are corrective, or mitigative, and immediately and promptly notify the Chairman. Such drilling and production operations shall not be resumed until adequate corrective measures have been taken and authorization for resumption of operations has been made by the Chairman. The lessee or permittee shall suspend any drilling and production operations, except those which are corrective or mitigative, if the Board shall determine that there is a substantial likelihood that continued operations would endanger public health or safety or cause serious damage to property or the natural environment. Such operations shall not be resumed until the Board shall determine that adequate corrective measures are feasible and have been taken to eliminate such substantial likelihood.

7.8 Diligent Operations Required.

The permittee or lessee shall be diligent in the exploration or development of the geothermal resources on the lands permitted or leased. Failure to perform diligent operations may subject the lease or permit to termination by the Board. Diligent operations mean exploratory or development operations on or related to the leased or permitted lands, including without limitation geophysical surveys, heat flow measurements, core drilling, or drilling of a test well. A report of all exploratory development operations and expenditures must be submitted to the Chairman at the close of each lease or permit year.

Beginning with the sixth year of the primary lease term, and each year thereafter, exploratory development operations, to qualify as diligent development, must entail expenses during that year equal to at least ten times the lease rental for the same year. Exploratory development expenses incurred during any year of the primary lease term in excess of those required herein may be credited toward diligent exploration during subsequent years of the primary lease term.
7.9 Records and Reports.

a. The lessee or permittee shall permit the Chairman of his representativeto examine during reasonable business hours all books, records and other documents and matters pertaining to operation under a lease or permit, in his custody or control, and to make copies of and extracts therefrom at the Board’s expense.

b. The lessee or permittee shall furnish to the Department for its confidential use the following in the manner and form prescribed:

(1) Statement showing the work performed upon the leased or permitted area and the amount, quality, and value of all geothermal resources produced, shipped or sold;

(2) Copies of all physical and factual exploration results, logs and surveys which may be conducted, well test data, and other data resulting from operations under the lease or permit.

7.10 Surrender of Premises.

At or before the expiration of the lease or permit, the lessee or permittee shall restore the lands covered by said lease or permit to their original condition insofar as it is reasonable to do so, except for such roads, excavations, alterations or other improvements which may be designated for retention by the Board or any state agency having jurisdiction over the affected lands. Where determined necessary by the Board or such state agency, cleared sites and roadways shall be replanted with grass, shrubs or trees.

Note: Mr. Clause’s comments with respect to Rule 7.1 are appropriate and continued herein. It appears to us that plans of operations cannot be as inflexible as the Ruling would seem to require. Plans of operations for exploratory work are substantially different than they are for development work and yet this Rule does not adequately distinguish between “exploratory” and “development” operations, which may take a considerable period of time. An appropriate operational plan would normally require the drilling of development wells for the generating plant just prior to the time the plant completes construction since it is unnecessary to be drilling wells during the total construction phase. Rule 7.8 would seem to preclude the efficient operation of a lease by requiring ill-timed and onerous expenditures. At least the Rule should distinguish between “exploratory” and “development” operations, which are by their very nature substantially different.

RUL 8
AMENDMENTS

These rules may be amended or repealed at any time by action of the Board, in accordance with Chapter 91 of the Hawaii Revised Statutes, provided, however, that any amendment to these rules changing the rental or royalty due the State of Hawaii or the terms of leases shall not adversely affect leases outstanding upon the effective date of the amendment.

The Board of Land and Natural Resources on ______, approved and adopted these rules and regulations.

STATE OF HAWAII

By

Chairman and Member
Board of Land and Natural Resources

And By

Member
Board of Land and Natural Resources

Approved this ______ day of ______, 19_____.

Governor of Hawaii

Approved as to form:

Deputy Attorney General

Date: ______

PUBLIC NOTICE
OF SUPPLEMENTAL PUBLIC HEARING

- 25 -
Mr. Daniel Lum  
Hydrologist-Geologist  
State of Hawaii  
Department of Land and  
Natural Resources  
Division of Water and  
Land Development  
P.O. Box 373  
Honolulu, Hawaii 96809  

Dear Mr. Lum:  

I respectfully submit for your consideration the following comments regarding the State of Hawaii's draft geothermal regulations.

The regulations, as you advised in our meeting last week, evolved from existing regulations commonly referred to as the bauxite mining regulations. Although geothermal exploration and development activity could be considered a mining activity by definition, it is more akin to petroleum practices and procedures than "hard rock" mining such as for bauxite; therefore, I believe it may prove difficult in some cases to adapt such mining regulations so as to be compatible for geothermal purposes.

Some of the terms and conditions of the draft geothermal regulations are foreign to the geothermal industry, and the regulations, if adopted in the present form, could discourage experienced geothermal operators from participating in the timely and most economic development of geothermal resources in the state. This, I am sure, is not the intent of the proposed regulations.

Although I understand you have not as yet compiled a draft lease form I would like to first discuss the geothermal lease and touch on those provisions that the industry feels are very necessary for geothermal operations.
By the very nature of the industry, the geothermal lease is patterned quite closely after the typical oil and gas lease that has been in universal use by the petroleum industry for over fifty years. It has a granting clause with the appropriate definitions, primary term, rental clause, royalty clause, pooling clause, quitclaim provision, etc., but certain additional lease provisions are included which are critical to the geothermal industry.

The granting clause should include, in addition to exclusive geothermal rights and the usual grants contained in an oil and gas lease, the right to store, utilize, produce, convert, and otherwise treat the resource and extract any extractable minerals. It must provide the right to inject or reinject effluents from wells located on the leased land or on lands in the vicinity thereof, and of course the right to construct power plants and related facilities such as pipelines, utility lines, power and transmission lines. The lessee may terminate the lease at any time, and in the event the lease is terminated for any reason, the rights granted with respect to power plants, roads, ponds, rights of way and/or easements that are being used at the time of termination should remain in effect so long as they are being used by the lessee, its successors and assigns.

It is necessary that the lease contain a shut-in well provision extending from the point of discovery to the sale of the geothermal resource.

A problem peculiar to the geothermal industry is the long lag time between discovery and revenue. After an initial discovery has been completed, there is a considerable amount of time that lapses while the lessee completes confirmation drilling and testing to assure that there is an adequate reservoir of energy prior to the opening of negotiations with a utility for the sale of the resource. Since a geothermal power plant must be located in the field and is designed specifically for the resource which has been discovered, it is absolutely essential that the utility be assured of a continuing power supply for sufficient years so it may have adequate time to amortize its investment. The utility may even require the lessee to indemnify it against loss in the event there is not sufficient power to operate the plant; therefore, the confirmation drilling and testing may be more time consuming in establishing the size of the reservoir than is normally required in the petroleum or mining industries. Consequently, this program may require three or more years before contract negotiations may be opened. Such negotiations, with one or more utilities, could span an additional year or more. Following consumation of the contract the lessee will encounter yet another delay while the utility is designing the power plant, which is followed by two years as a minimum for the construction of the plant itself.
The above is recited to demonstrate the need for adequate time, even beyond the primary term of the lease, to place a well on commercial production after discovery.

One of the more important clauses that the lease must contain is the commingling provision. This permits the lessee to gather steam from several leases and transport the energy in a common line to a power house.

Commingling is recited in your draft regulations but not mentioned is the pooling provision.

A pooling clause permits the lessee to pool all or part of the leased lands with one or more other adjacent leases into an operating unit. Any well or wells commenced, drilled, drilling and/or producing in any part of the unit area shall for all purposes of the lease agreement be deemed on the leased land. Royalty is paid in proportion that the acreage of the leased land contained within the unit area bears to the total acreage of the unit. The typical pooling clause permits the lessee to create such an operating unit within twenty years from the effective date of the lease; however, the unit area usually cannot exceed 1920 acres plus an acreage tolerance of ten percent.

Operating units have been in universal use by the petroleum industry almost from its very beginning and the benefits derived by the industry also holds true for the geothermal industry. The implementation of a unit area is to prevent waste, conserve natural resources, eliminate the drilling of excess or unnecessary development and injection wells and secure the other benefits obtainable in a plan of operation for the uniform development and production of the geothermal resource.

The basic lease form that will be issued pursuant to the state geothermal regulations should be drafted and complemented into the regulations before the said regulations are approved and adopted. This, of course, will not prohibit the Board as it deems appropriate from adding any additional special stipulations to any proposed lease agreement. I believe it is important, however, that all such special stipulations be decided upon in advance and recited in the public notice of the land area to be put up for competitive bid.

I have previously furnished you various state, Federal and industry geothermal lease forms. Please do not hesitate to let me know if I can be of any assistance in clarifying any of the terms and conditions of these agreements.

My cursory comments on specific portions of the draft regulations are expressed below.
RULE NO. 2: The need for geothermal exploration permits appears unnecessary for the following basic reasons:

a) The exploratory phase can be performed just as well under the terms of a geothermal lease pursuant to Rule Nos. 3 and 4;

b) An operator, who holds a geothermal exploration permit and who has expended considerable time and monies in evaluating and perhaps establishing the existence of a geothermal resource MUST BE ASSURED of being able to proceed from step one (the geothermal exploration permit phase) to step two (the geothermal lease phase with full rights to develop and produce the discovered resource) such assurances being absent from the draft regulations; and

c) The permit phase will only give rise to a longer time lag of inactivity between discovery and point of commercial production caused by the duplication of application procedures, public hearings, approvals, paper work, etc., all of which must be repeated during the lease acquisition phase.

Proposed Rule No. 2, however well-intentioned, is ill-advised, and its adoption will be counter-productive. The rule could encourage the entry of speculators into the permitting phase, but the experienced geothermal developer may be reluctant to risk his capital in the search for the resource if he is not assured of participating in its final development.

3.1 - For the reasons previously discussed above, a basic lease form should be drafted and made a part of the regulations.

3.2 - The paragraph introduces the procedures of leasing state lands that have been designated as "known geothermal resources" lands; however, no provision has been made for the leasing of state lands not designated as such. Perhaps appropriate provisions should be put into the regulations whereby non-designated state lands may be applied for in a manner similar to the acquisition of Federal noncompetitive leases. Part 3210 of the Rules and Regulations to the Geothermal Steam Act of 1970 may be referred to for the method whereby a party can make application for a geothermal lease on Federal land which is not within a KGRA (known geothermal resource area).

3.4 - It is the standard practice today of other government agencies to offer lands for competitive leasing by the sealed bid method. Such a procedure is detailed under Part 3220 of the Rules and Regulations to the Geothermal Steam Act.

The sealed bid procedure, as opposed to the competitive bid basis at public auction, provides a more uniform and consistent method...
of conducting a sale. In most cases it also tends to discourage bidding by speculators and provides these agencies conducting the sale more revenue from their leased lands. The per acre annual rentals for all leases are fixed by the regulations; therefore the highest total bonus consideration bid for each lease offered in the sale solely determines the winning bidder.

3.7g. - The consideration between parties of a lease assignment must be considered proprietary information; therefore the reference to same should be omitted from this paragraph.

3.8 - The words or of law in the second line of this paragraph should be replaced by the words or these regulations. I think you will agree the lessee should have to look only to the terms and conditions of the lease, the regulations, or the decisions of the Board in the conduct of its leasehold activities. The words of law carries too broad of a meaning.

3.9 - To penalize a lessee through the forced payment of additional rentals in order to surrender a lease is unheard of in the geothermal industry. Rather, the Board may want to encourage lessees who no longer wish to explore or develop the leased lands to surrender it thereby causing a more rapid turnover of the lands to another, perhaps, more aggressive lessee. The bonus monies received by the state on a new lease should more than compensate for the loss of the said penalty payments. I strongly suggest the references to these payments be omitted from the paragraph.

3.11 - As previously stated above, the terms and conditions of a proposed lease, if different from any of the terms and conditions contained in the approved lease form, should be published in advance of the sale offering the lease.

3.12b. - The phrase to 1,000 feet or deeper in line four of the paragraph should be changed to read below the depth of 1,000 feet or at a lesser depth of productive zone.

The word utilized in line six of the paragraph was probably intended to be unitized.

3.12c. - The paragraph states that a lease may not be continued for more than 55 years after the end of the primary term. It is suggested that the paragraph contain an additional provision whereby if at the end of the aforementioned period geothermal resources are being produced or utilized in commercial quantities, the lessee shall have a preferential right to a renewal of the lease for a second 55 year term in accordance with such terms and conditions as the Board deems appropriate.
3.13 - As previously discussed above, I believe the annual rental should be a fixed amount and the said amount specified in the regulations. The bonus consideration offered for a lease should be the only factor in the determination of the successful bidder in a competitive lease sale.

3.14c. - The paragraph is not clear. I assume its intent is to put the Chairman on notice on or before 15 days following the testing program of the initial discovery well on the lease, and also like notice prior to the commencement of the initial commercial sale of geothermal resources from the leased land.

3.14e. - The word disposal in the second line of the paragraph probably should be changed to the word sale.

3.14f. - It is suggested the paragraph be rewritten as follows:

"Metering equipment shall be maintained and operated by lessee in such a manner as to meet acceptable standards of accuracy consistent with geothermal industry practices. Use of such equipment shall be discontinued at any time upon determination by the Chairman that standards of accuracy or quality are not being maintained and, if found defective, the Chairman will determine the quantity and quality of production from the best evidence available.

3.14h. - The lessee's need to commingle production was previously discussed above and I want to emphasize the point that it would be nearly impossible to operate a geothermal field without this provision; therefore the lease must contain this right subject only to the Board's right to approve the plan by which commingling will be carried out.

It is suggested a pooling clause similar to the one previously discussed above be added to the regulations following paragraph 3.14h.

3.19 - The company can agree to the contents of this paragraph, subject, however, to the following comments.

Needless to say, we have always made it a firm policy in dispensing royalties only after the ownership of the resource has been firmly established by title examination or court decision; however, we do not know at this time who owns the geothermal resource if there has been a severance of the mineral estate from the surface estate. In oil and gas there have been enumerable cases regarding the ownership of oil and gas rights; however, we do not have these precedents to follow in the geothermal industry and as a matter of fact our Federal courts have rendered only one decision in this regard. That case is United States v. Union Oil Company of California in the U. S. District for the Northern District of California.
The basis of this suit was the reservation of coal and other minerals by the United States in the patents granted to the defendant's predecessors in title. The government contended that this reservation made pursuant to the Stock Raising Homestead Act of 1916 vested the geothermal rights in the U.S.A.; however, the court held for the surface owner. The decision is rather lengthy but I believe the court largely based its holding on the fact that it was not the intention of Congress to reserve this resource when the Act was passed. The decision makes reference to the debates, reports and other legislative history pertaining to this bill. Additionally, the court seemed to lean on the theory that the substance is steam and, therefore, a form of water and legally water has never been categorized as a mineral. Of course, science considers water as a mineral in the broad animal, vegetable, mineral concept. This case is now on appeal in the Ninth Circuit Court of Appeals and so it will be sometime before a final judicial determination is made regarding this reservation.

By the mere legislative action of enlarging on the definition of minerals to expressly include geothermal resources AFTER the severance of the mineral estate from the surface estate of any specific parcel of land does not necessarily eliminate the ownership problem discussed above. Final decisions in the above case and perhaps many more similar cases will have to be rendered before the problem can be put to rest.

With the above comments in mind, it is suggested Paragraph 3.19 be expanded to authorize a lessee to place royalties attributable to reserved lands, as are defined in the regulations, into an escrow account with the express condition that the said impounded funds will be awarded to the successful litigant when the final judicial determination is made to the ownership of the royalties.

RULE NOS. 4, 5 & 6 - The leasing procedures, as now written, will slow the leasing process down to a point that will deter any interest in geothermal activity in the state.

First, the information that must be submitted with an application will be time consuming and costly in compiling, unknown or incomplete in most cases and confidential in nature. If a potential lessee gets into a competitive bid situation he should not have to give out competitive information. Such availability of such information will attract speculation and will discourage development of the resource. A lessee is requested to furnish such data (Paragraph 7.2 - Plan of Operations Required), but an applicant should not have to be burdened with submitting such information if he is not assured of eventually gaining the lease.

Second, public hearings seem unnecessary prior to the issuance of a lease or until a development program is actually contemplated for a specific area. The Board, through these proceedings, is giving up much of the authority of the professionals on its staff.
to other agencies and individuals. The lessee, on the other hand, should only have to look to one government authority in conduct of his geothermal activities, in this case the Board of Land and Natural Resources.

Third, in the case of reserved lands, input from an occupier should only come into play if and when the occupier has actually suffered material damage. In my opinion the state enjoys the implied right of surface entry to reserved lands and the use of the surface of the land for the purpose of extracting mineral resources to which it reserved title.

Perhaps the leasing process can best be accomplished in the following abbreviated manner:

a) Nomination for lease is filed by industry or individual to the Board together with an accurate description of the state lands or reserved lands desired;

b) Decision is made by the Board whether or not to lease the nominated lands;

c) If the decision is made to lease the nominated lands, the Board rules whether or not the said lands be designated as known geothermal resources lands;

d) If designated as known geothermal resources lands, the same is advertised for lease, a competitive lease sale is held, and the highest bidder is awarded a lease pursuant to the terms and conditions of these regulations;

e) If not designated as known geothermal resources lands and no other nominations for the same lands were received by the Board during a nominating period, to be specified in these regulations, a lease is awarded to the nominee pursuant to the terms and conditions of these regulations; and

f) If more than one nomination is received for the said lands during the same nominating period, the lands shall be designated as known geothermal resources lands and leased by competitive bid.

7.3 - This paragraph requires the operator to obtain the Chairman's approval before any deviation from the plan of operations can be undertaken. Such approvals should rarely be required because the approved plan of operations shall provide sufficient contingency plans to cover most unforeseen activities in the field. This may not be the case during drilling.

Drilling operations are conducted on a 7 day - 24 hour basis. Charges for standby time for land rigs can run as high as $4,000.00 per day. These facts are merely pointed out to show what could happen if a decision must immediately be made in the field at
2 o'clock on a Sunday morning that is contrary to the plan of operations such as plugging a well for mechanical or other reasons prior to reaching the programmed total depth, and the Chairman, or even his delegated person of authority, may not be found until the following Monday morning.

The regulations should provide for such contingencies and relief for the operator if approvals from the Chairman are solicited but not timely received.

7.4d. - This paragraph also makes mention to the abandonment of wells without the prior approval of the Chairman. A prudent operator should not be required to secure the Chairman's approval to abandon a well if abandonment procedures are fully defined in the approved plan of operations and the Board staff is put on notice before abandonment to witness, if time permits, the plugging of the well.

Also, the second to the last sentence in Paragraph 7.4d. implies that the drilling rig cannot be removed from the well site until the well has been plugged. It is standard industry practice to move the rig off the well site after the well has reached its projected total depth while the well is being tested. Following the testing program, the drilling rig or a smaller, less expensive completion rig is brought in to complete or plug the well. That portion of the paragraph should therefore be clarified to cover such practices.

7.5b. - This paragraph, as now written, will be difficult for the industry to accept. An offset clause that would be acceptable is as follows:

"In the event a well or wells producing geothermal resources in commercial quantities should be brought in on adjacent land and within 660 feet of and draining the leased lands, Lessee agrees to drill such offset wells as a reasonably prudent operator would drill under the same or similar circumstances."

7.6f. - The words except public roads should be inserted in the first line of the paragraph between the words roads and and.

7.6j. - As previously discussed above, the lessee should only have to look specifically to the Chairman or the Board, and not the state or other government agencies, in carrying out the terms and conditions of the lease. Also, the need for such items as danger signs and fences shall be fully detailed in the approved plan of operations and, therefore, need not be mentioned in the regulations.
Mr. Daniel Lum

September 3, 1976

7.7 - The circumstances recited in this paragraph can be fully covered in any approved contingency plan annexed to the plan of operations and, therefore, need not be mentioned in the regulations.

7.8 - The last paragraph should be eliminated because of the following reasons:

a) The first paragraph adequately instructs the lessee he must perform diligent operations;

b) The contention by the Board on whether or not the lessee has conducted diligent operations is subjective in nature;

c) A lessee, confronted by a directive of the Board that he is to be penalized for noncompliance of this provision, could fabricate unnecessary, extravagant, or wasteful projects for the leased lands for the sole purpose of equalling the minimum expenditures set by the Board; and

d) This provision is inconsistent with accepted industry practices and any prudent operator will be reluctant to enter into such an arrangement.

7.9 - Due to the highly competitive nature of the industry, it should be expressly provided in the regulations that all records and reports submitted by the lessee to the Board be held on a confidential basis during the existence of his lease, and that interpretative, experimental or secret data will not have to be submitted to the Board.

7.10 - It is not practical to assume that a lessee can comply to all of the provisions of this paragraph on or before the expiration date of the lease; therefore the beginning of the paragraph should read Within 90 days from and the words At or before be omitted.

I appreciate your giving me the opportunity to submit the above comments to your draft geothermal regulations, and, needless to say, I hope that you will keep me informed on any future developments on the regulations.

Thank you.

Very truly yours,

Henry T. Snow

HTS/ber
Division of Water and Land  
State of Hawaii  
P. O. Box 373  
Honolulu, Hawaii 96809

Attention: Mr. Robert T. Chuck  
Manager

Re: Proposed Regulation of  
Geothermal Exploration,  
Mining and Leasing on  
State and Reserved Lands  
in Hawaii

Gentlemen:

Our comments on the proposed geothermal regulations are submitted herewith. We recognize this is a late response compared to your schedule of preparing the regulations for consideration by the Board of Land and Natural Resources. However, we hope our comments can be of some assistance in the final preparation of these important regulations.

Rule 3.9 - Surrender of Mining Leases

The proposed payment of two years rent to allow surrender of a lease contradicts the convention of making rental payments to extend and maintain a lease. We think a Lessee's right to voluntarily surrender leasehold should not be penalized by further rental payment.

Rule 3.12d. - Duration of Geothermal Mining Leases

A Lessee should be relieved of rental payments if production is shut-in by Governmental or Court order.

Rule 3.13a. - Rentals

The last sentence of this paragraph, concerning "failure to pay exact rental" should be removed because it is in conflict with the benefits allowed under Rule 3.8, where a Lessee, not paying any rental when due, is given 6 months to remedy his default.
Rule 3.14a.(1) - Royalties

It is recommended that the words "or reasonably susceptible to sale or utilization by the Lessee" be removed from this provision. Finding agreement on what is "reasonably susceptible" and the quantities and values related to that category is likely to be a very contentious proceeding.

Rule 3.14c. - Royalties

The language of this paragraph is not complete. We think it is intended that notice be given to the Chairman within 15 days after discovery and that another notice be given 15 days before commercial use or removal commences.

Rule 4 - Procedures For Leasing On State Lands

We believe that all of the provisions from Rule 4.1 through 4.8 are appropriate to an application for a geothermal mining lease on reserved lands only. These provisions, as applied to the applicant for a lease on State lands, simply reduce to a serious penalty for the applicant party taking the initiative. These provisions, as written, ask nothing of the competitive parties that could appear in the public auction (Rule 4.10) and in fact favors such parties with a free education as provided by Rule 4.7.

Given that the State, by law, will provide a geothermal mining lease on State lands only through the public auction procedure, we believe the Board cannot fairly ask for anything more than nominations of State lands for public auction from "Persons" qualified to hold such leases. Please examine the procedure used by the Department of the Interior with respect to competitive leasing of oil and gas rights on the Outer Continental Shelf.

Most onerous to a qualified geothermal company would be the early public disclosure under Rule 4.7 of the data submitted under Rule 4.3b. and c. We strongly recommend that this data in every kind of application be given a two-year initial confidential status in which it is used only by the Board and its technical agency qualified to pass judgement on such data.

We urge that Rule 4 be reduced to a nominating procedure supplemented by the procedures now specified under part 4.9 and 4.10. We urge that all of the procedures under parts 4.1 through 4.8 be placed in an enlarged Rule 5 where they will more properly serve the public interest when the State grants a geothermal mining lease without public auction.
We appreciate this opportunity to comment on these proposed geothermal rules. Please feel free to call me collect at 415/981-5700, extension 170 if you need clarification on any of these comments. Please add our firm to your mailing list of interested parties to be noticed in your further procedures or public hearings on this matter.

Very truly yours,

W. L. D'Oliver
Vice President
Geothermal Operations

WLD/tti

cc: Mr. Dan Lum
March 22, 1976

Mr. Daniel Lum,
Department of Land and Natural Resources,
State of Hawaii,
Post Office Box 621,
Honolulu, Hawaii 96809

Dear Dan:

As you asked me to do, I have reviewed the draft regulations for geothermal exploration and mining, and have several reactions and suggestions, of varying degrees of importance, which are set forth below.

Let me start with a few general observations. First of all, I think that the draft establishes a useful framework of rules, under which geothermal development in Hawaii can proceed. The rules are relatively brief and general in dealing with drilling operations, but I can understand the point of view that says let's start off that way and get more specific after local experience with geothermal wells has been gained.

My greater concern is that with respect to regulating geothermal production the scope of the regulations is limited to wells on state lands and reserved lands. Whereas all exploration wells are seemingly subject to regulation by DLNR, the much more important production wells are not. I appreciate that it is much less assertive of the regulatory power of the State if you limit to exploration the applicability of the rules to private lands, but it is also much less significant, since exploration merely finds the resource, while production wells use it. The rules as drafted would seem to leave production wells on private lands essentially unregulated, even if they were unsafe and wasteful of the geothermal resource.

Is there not a legal basis in Chapter 177 of the Hawaii Revised Statutes, covering ground water use, or Chapter 178, on wells generally, for extending these regulations to geothermal production wells? If so, some beneficial equality and order would be provided for geothermal development wherever it might occur, whether on State, reserved or private lands. Uniform applicability of the regulations to all drilling could provide for well spacing, could cover slant drilling into reservoirs partly under private and partly under public lands, and in other ways more adequately guard against wasteful exploitation of the resource, as well as protecting life and property around geothermal production areas. I realize that the Department of the Attorney General
has looked at the question of the scope of rules under Chapter 182, but I raise the related question of using a broader framework which may be available to the Department under Chapters 177 and 178.

As to the specific points, they are listed below in the order of the sections of the rules to which they apply. Several, you will see, are stylistic, but other suggestions or questions go to substance.

1. The title. What is this document to be called -- "regulations", "rules" or "rules and regulations"? It is differently referred to within; for example see Sections 3.1 and 3.2.

2. In 1.5, the reference should be either to Section 183-41, or to Chapter 183.

3. In 1.6, the main verb in the definition of "State lands" and "Reserved lands", would better be "means" instead of "includes". The verb "means" is used in all the other definitions, and some attorney may read significance in the switch to a different verb.

4. Why does the definition of "person" exclude aliens? Matter of State law?; policy?

5. The definition of "mining lease" in 1.6 applies only to state lands and reserved lands, and I have already questioned the desirability of that limitation.

6. Still on 1.6, the definition of "well" uses the term "exploration", which is an important term in the regulations, as it is differentiated from "production". However, there is no definition of "exploration". Would it not be useful to have that definition?

7. The statement on "Geothermal Policy" in 1.7, might well include a declaration to the effect that it is the policy of the state to have geothermal resources developed in some optimal manner, so to avoid wasting this resource, wherever found, on state, reserved or private lands.

8. In 2.2, in view of the fact that conformity with environmental control laws is built into these rules, it might be appropriate to state explicitly, i.e. by making the last sentence conclude: "all applicable State laws and regulations, including environmental controls, have been complied with, etc."

9. The insurance coverage specified in 2.4(a) is not clearly stated. I presume that the three amounts, reading across the page, respectively refer to damage to property and environment, death, and bodily injury, but this is not clear. Further, it is unclear as to what these amounts represent. Are
these the amounts of total coverage, or that which must be provided for any single claim? Since this insurance is for exploration, and exploration includes drilling, I don't see why these amounts are so much lower than the liability insurance requirements set forth on page 12.

10. Similarly, in 2.4(b), setting the surety bond at $1,000 seems low.

11. In 2.5, is it intended that there be no limit to the number of exploration permits which may be granted to any applicant? As stated, not clear.

12. A few suggestions on 2.6:

a. The title would be more descriptive if it read: "Approval or Disapproval of Permit Applications", or "Review of Permit Applications".

b. The first sentence might better start with these words: "The process of reviewing applications includes, etc." Still in the first sentence, do the words "but not necessarily be limited to" mean that the Department can spring other requirements on applicants without notice?

c. In the last line of clause a, the word "that" should be "as".

d. Should not this rule include a requirement for submitting a drilling plan, together with either an E.I.S. or a negative declaration?

e. Who formally approves permit applications -- the Department? the Board? the Chairman?

f. In clause d, I suggest rephrasing the last two lines so they read "geothermal exploration, and the Department may so rule if it finds good reason that geothermal development subsequent to exploration would not be in the public interest".

13. In 2.7, I suggest rewording the last portion to read "and, at the discretion of the Board, may be renewed for a maximum of two additional years".

14. In 2.8, I suggest adding these words at the end: "therefore more than one permit may be in force at any time for any given area."

15. In 2.10, the Chairman issues orders, while in 2.11, the Department cancels permits. Should not cancellation also be the function of the Chairman?

16. Still in 2.10, I suggest adding at the end of clause (a) these words: "that it is violating such legal requirements".

17. In 2.11, I suggest that in clause (a) the words "after notice to the permittee" be dropped, as they are redundant of language in preceding sentence.
18. In 3.1, I think the semicolons make for ambiguity in the reading of this paragraph.

19. In 3.2, I suggest the following changes:
   a. Delete the word "considered" in the second line.
   b. At the end of the first sentence add a comma and the words "except as stated herein".
   c. Change the last sentence to read "Exceptions to the availability of such lands for leasing include:"
   d. In clause (b) on page 6 delete the word "withdrawing"; insert the word "needed" after "lands"; and insert the word "as" before "pilot" in the last line.

20. In 3.3, what is the force of the word "first" in the third line?

21. In 3.5 (and elsewhere in the rules), what is meant by the "voting members" of the Board? Are there non-voting members or does this mean two-thirds of the members present and voting?

22. Again referring to 3.5, since it is stated that exploratory permits are non-exclusive (Rule 2.8) should this rule make it clear that leases are exclusive?

23. I have several questions on 3.7, on the "Assignment of Mining Leases". First it seems so long and detailed compared with other aspects of the rule. Is this because many problems are anticipated? In paragraph (a), I suggest deleting the words "to the extent", as being redundant. In paragraph (b), should it be made clear that written approval must be given by the Board, if indeed it is not by the Chairman? In paragraph (c), what does the 10% refer to - the value of the lease? the acreage? What is the purpose of this limitation? Are not the requirements of paragraph (d) already covered by paragraph (a)?

24. In 3.8, it strikes me that accepting a mere allegation of "uneconomic operation" gives the operator a wide loophole for avoiding the requirement that mining leases should be put to work. It would be difficult to enforce this one, unless the burden of proof is put on the operator.

25. In 3.9, should the word "may" in the fourth line from the bottom not be "shall"?

26. In 3.11, I would suggest replacing the word "or" in the third line with "as being", since the test of appropriateness should be the public interest.
27. In 3.12, paragraph (d), the style changes to omit the article "The" before "lessee", and so it is in other sections.

28. Again in 3.12, paragraph (d), what is the meaning of "shut-in"?

29. In paragraph (e), should the words "of steam" be added after "production" in line 3? There is a typographical error in "utilization".

30. Similarly, there is a typographical error in the fourth line -- the word "the", in 3.13.

31. In paragraph (b) of 3.13, on what policy grounds are rentals to be deducted from production royalties? Since the rentals are relatively low, this may not be important practically, but I wonder what the idea is.

32. In 3.14, I suggest adding the words "or commercial" after the word "industrial" incurring in the last line of section b(2).

33. In 3.15, it is not clear what "overriding royalty interests" means. Can you insert a definition? In the last line of paragraph (a), there is a typographical error (the first word). Also, does the last sentence which says "Such interests will not receive formal approval", mean that approval will be given automatically, or that it will not be given at all?

34. In 3.16(c), add at the end of line 1 the words "is operating".

35. In the first line of the top of the page 13, I suggest inserting the words "in the insurance coverage" between the word "included" and the word "prior".

36. In the last paragraph of 3.17, I think that the word "paragraph", occurring twice, in each case should read "section".

37. In 4.3, item (d), I suggest inserting in the next to the last line, before the word "protection", the following: "the program which would be undertaken for the "...".

38. In item (e) of 4.3, I suggest adding after the last word a comma plus "in such specifics as the environmental laws and regulations of the State of Hawaii may require".

39. In 4.3(g), I suggest inserting the words "in writing", after "Department".

40. In 4.4, I suggest substituting for the last two words the following: "why they are held to be incomplete".
41. The title of 4.6 would better read "Procedures in Consideration of Application".

42. Again in 4.6, shouldn't the application be sent to both the surface rights holder and the occupier (see paragraphs (a) and (b))? 

43. In 4.7, I suggest changing the first word in line 3 from "the" to "a".

44. In 4.8 and 4.9, I suggest inserting the word "alternative" in between "future" and "use of the land".

45. Does not the schedule of rentals listed in 4.10 repeat what is in 3.13 (page 10)?

46. In 6.1, suppose there is no agreement by the occupier and he refuses arbitration, does this mean that the development is blocked? Or can the Board require geothermal development, if it finds it to be in the public interest?

47. In 6.3(d), do you want to provide that a deputy or representative of the Chairman can enter leased land and premises?

48. In 7.8, paragraph 2, the requirement to spend at least ten times the lease rental in order to keep a lease alive, seems only nominal. For example, if 500 acres are rented at $2 a year per acre this expenditure requirement would amount to only $10,000.

49. In 7.9, how long does the confidentiality of the records remain in force -- for one year? ten years?

50. As I remarked at the beginning of this long letter, there is missing from the rules any regulation protecting safety, or the environment, or the geothermal resource itself, from potentially destructive production drilling on private lands. This seems paradoxical, since exploration drilling is more thoroughly regulated, and it is of lesser impact upon the resource and the environment.

At the minimum, could you not apply to production on private lands the following proposed rules to production on private lands: 6.3(e) and (f) [except first sentence], 7.1, 7.2, 7.3, 7.4(b), 7.5(a), 7.6(b),(c),(d),(e) and (i),(j)?

I hope this long-winded response will be helpful to you and to the Department in the preparation of the geothermal regulations.

Sincerely,

Robert M. Kamins
Co-Principal Investigator

RMK: nf
State of Hawaii
Dept. of Land & Natural Resources
Division of Water & Land Development
P. O. Box 373
Honolulu, Hawaii 96809

Attn: Mr. Dan Lum, Hearings Master

Ref: Geothermal Rules and Regulations

Gentlemen:

In the event that we are not able to attend public hearings for the above, we wish to state our comments as follows:

Rule 3.2 Resources Available for Leasing

It is too limiting to restrict leases only to "Known Geothermal Resource Areas", as defined in this draft.

The wording should be expanded to include areas where prior geophysical investigation indicates a likelihood of Geothermal resources. These geophysical studies should be presented at time of lease application for review by the Board for sufficiency.

Rule 4.3 Lease Application Exhibits

An exploratory permit should not be required as a pre-requisite to applying for a lease, where in the opinion of the Board, evidence of adequate exploratory work has already been completed by the lease applicant prior to the adoption of these rules.

Rule 3.14 Royalties

In order to provide incentive to investors of high risk capital for geothermal exploration and development, and to help offset the unusually long period expected to reach an investor's break even point, it is suggested that the Board provide for its discretionary use.
in allowing for a Royalty moratorium of 5 years, or for an 
escalating royalty over a period of 10 years.

At some time in the future, after public seeding funds have been 
exhausted, it will be necessary for private enterprise to raise risk 
and investment capital to develop and commercialize geothermal 
power. This will require a lot of kokua from the public (State) 
sector in the initial stages. The foregoing moratorium suggestion 
is a widely used method of providing encouragement to new industry, 
particularly where the establishment of that industry is clearly in 
the best public interest.

Rule 4.6 (a)

In order to save time it should be required that all "considering 
agencies" and occupiers will be required to review the application 
concurrently and report within the fixed period of 30 days.

General Remarks

The development of a potentially valuable public resource, such as 
geothermal energy, depends heavily upon the economic climate and 
co-operative government-industry working conditions generated by the 
local government. Geothermal development is in its infancy, and 
Hawaii has a unique opportunity of getting this off to a good start by 
adopting realistic and workable rules and regulations, and of demonstra-
ting to industry that Hawaii can avoid the bureaucratic pitfalls and 
stalemates that are already discouraging rapid geothermal development 
elsewhere.

A Geothermal Energy Association will be formed in California in 
April 1976, consisting of all interested parties in every State, for the 
specific purpose of generating such a co-operative force between 
government and industry.

Hawaii will be well represented and will continue to have a voice on 
the national level in guiding the future of geothermal exploration and 
development.

Very truly yours,

GEOTHERMAL EXPLORATION & 
DEVELOPMENT CORP.

E. C. Craddick
Vice-President

ECC:smw
April 6, 1976

Mr. Christopher Cobb
Chairman of the Board
Department of Land and
Natural Resources
State of Hawaii
P. O. Box 373
Honolulu, Hawaii 96809

Dear Mr. Cobb:

Subject: Proposed Regulation of Geothermal Exploration, Mining and Leasing on State and Reserved Lands in Hawaii

We have reviewed the draft proposal of the proposed regulations and have the following comment.

We are in general agreement with the purpose and objectives of the subject regulations.

Very truly yours,

KAZU HAYASHIDA
Director and Chief Engineer
Mr. Christopher Cobb, Chairman and Member  
Board of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Cobb:

SUBJECT: Comments on Regulation of Geothermal Exploration, Mining and Leasing on State and Reserved Lands in Hawaii

We appreciate the opportunity to comment on the proposed regulations for exploration, mining and leasing of geothermal sources on State and Reserved lands. Our comments, directed to the protection of water resources follow:

(1) Rule 7.1c. We feel the inclusion of protection of surface and groundwater that are utilized or potentially usable is very important and should not be left to be interpreted as being covered under "natural resource" or "environment". Therefore, we suggest that this rule be amended to read:

"The operator of a lease or permit shall take all reasonable precautions to prevent waste and damage to any natural resource including vegetation, forests, surface and groundwater resources and fish and wildlife; injury or damage to persons, real or personal property; and degradation of the environment."

(2) Rule 7.4d. This section lacks specific wording for responsibility of the "proper" sealing of the abandoned well. The operator need only submit a proposed method of abandonment presumably by capping or sealing. Capping is intended only as a temporary means of abandonment. Complete abandonment should require proper sealing.

(3) Rule 7.6d. This section should be expanded to cover undesirable degradation of water resources by direct discharge or by infiltration.
If you have any questions regarding explanation of these comments, please call Chester Lao at 548-5276.

Very truly yours,

Edward Y. Hirata
Manager and Chief Engineer
PROPOSED DLNR REGULATION OF
GEOTHERMAL EXPLORATION, MINING AND LEASING
ON STATE AND RESERVED LANDS IN HAWAII

Statement for
Department of Land and Natural Resources

Public Hearing
4 May 1976
By Doak C. Cox
and Jacquelin Miller

Under the authority of Chapter 182, Hawaii Revised Statutes, the Department of Land and Natural Resources has proposed regulations of geothermal exploration, mining, and leasing, on state lands and lands in which the mineral rights have been reserved by the state. This statement pertains solely to environmental aspects of the proposed regulations. In its preparation, Robert Kamin of the Department of Economics and Gordon Macdonald of the Department of Geology and Geophysics of the University of Hawaii have been consulted. However, the statement does not represent an institutional position of the University.

Two kinds of control of geothermal exploration and development are proposed in the regulations:

a. Controls of geothermal exploration under a permit system.

b. Controls of geothermal development under a lease system.

The permit system applies to exploration in any lands in the State. The lease system applies to development only in lands owned by the State or in which mineral rights are reserved to the state.

Geothermal development has been widely publicized as environmentally desirable, and, in as much as it provides a means to conserve natural resources, it is distinctly desirable. Nevertheless it entails potentially
serious detriments, in the form for example of air and water pollution. Hence the environmental effects of geothermal developments deserve thorough consideration in public approval processes.

For a discussion of potential environmental impacts we suggest reference to the chapter on "Environmental Impact of Geothermal Development" by Richard G. Bowen in Geothermal Energy, edited by Paul Kruger and Carol Otto (Stanford Univ. Press, 1973: Chapter 10). These include visual impacts; auditory effects; thermal effects (hot water or steam); chemical effects (including those of brine, materials that will be deposited from solution, harmful elements and compounds in aqueous solution, and gases); and possibly subsidence and seismic effects.

We note that, by section 1.7 of the draft regulations, "it shall be the policy of the Board to encourage the exploration, development, and use of geothermal resources in a manner that will provide for the optimum use of the land with appropriate protection of the environment and natural resources including geothermal, ground water, fish and wildlife, and forests." However, we find very little guidance in the draft as to what protection of the environment and natural resources is considered appropriate, and even such mechanisms as it proposes for considering potential detrimental effects seem inadequate. (Incidentally, we assume that the word "geothermal" in the list of resources to be protected in the policy statement just quoted was intended to be "geothermal resources").

The major provisions that relate directly to the protection of the environment, including natural resources, are those of section 7.6. Subsections a. and b. of that section deal with visual impacts, requiring respectively the removal of drilling towers when the need for them is ended, and landscaping or fencing of operating sites. It seems implicit in subsection b. that such operating sites will be unsightly.

Subsection c. requires that: "All drilling and production operations shall be conducted in such a manner as to eliminate as far as practicable dust, noise, vibration or noxious odors; and that the "Operating sites shall be kept neat, clean and safe." These requirements are followed by three sentences relating to drilling dust, as if this were the major source of detriment. No dust is likely to be formed directly by the drilling, though the materials used to make drilling mud, the mud itself after drying, and soil when exposed and dried will be sources of dust. Dust, in any case, seems likely to be of smaller consequence than noise and air pollution.

Noise is a serious problem in some geothermal developments, yet the regulations contain no noise standards.

Air pollution may well be a problem whose gravity is not hinted at by the instruction to eliminate noxious odors as far as practicable. The sulfur oxides that may be emitted are not only odoriferous but harmful to
health and damaging to vegetation. Mercury and other vapors including odorless gases may add to the problems. Subsection d. requires that wastes be discharged in accordance with all Federal, State, and local regulations. Federal and State ambient air quality standards for sulfur oxides are applicable to the effects of geothermal development, but there are no applicable emission standards, and none are proposed in the regulations, nor are any proposed for mercury or other potential air pollutants to which no present standards are pertinent.

The grave potential for water pollution is not recognized except in the general requirement as to waste discharge in subsection d. and in the requirement in subsection e. that soil distributing activities not result in unreasonable soil erosion or degradation of water resources. There is no recognition of the potential for water pollution by such substances as brine or sulfuric acid.

To some extent the lack of specific environmental regulations is expectable. Other than some minor geothermal developments at the Kilauea "Sulfur Bank" and in the vicinity of the Volcanoes National Park headquarters, there has been no experience with geothermal development in Hawaii. The magnitude of the noise problems, and the nature, concentration, and discharge rates of possible air and water pollutants that will be encountered in developments in the islands are unknown. The first exploratory well that promises to provide information on the potential environmental impacts, that drilled by the University of Hawaii, has yet to be tested. A part of the exploratory program will deal with the economic and environmental aspects, but the work in this part, to date, has related mainly to background studies rather than the potential environmental impacts of geothermal development under Hawaiian conditions.

Among standards which could probably be established appropriately on the basis of present information are those related to the casing of geothermal wells. We recommend that DLNR consider requiring, within the regulations, that the location of fresh groundwater aquifers to be penetrated by a geothermal well be established by test drilling or other means, that a geothermal well be cased through any groundwater aquifer that will be penetrated, that the annulus outside the casing of such a well be cement grouted, and that the success of the grouting operation be tested.

We urge that the DLNR staff consult with the staff of the Department of Health and the staff of the University's geothermal exploration project to develop such specific pollution control regulations and standards as are now appropriate. We suggest the possibility that some of the standards would be provided more appropriately in DOH regulations than in DLNR regulations. The DLNR should recognize, however, that whatever specific regulations and standards are adopted now should be subject to review and probable expansion in detail later.
To some extent, the environmental regulations and standards pertaining to geothermal developments elsewhere may be applicable to potential developments in Hawaii.

To such an extent as specific regulations and standards cannot now be identified that would be appropriate under Hawaiian conditions, proper controls must be exercised under general regulations. Section 7.2 of the proposed regulations requires submission of a plan of operations by the holder of a geothermal development lease or a geothermal exploration permit, and the approval of the plan by the DLNR Chairman. The plan must include a description of methods for disposing of waste material, under subsection g, and descriptions of means to control fire, soil erosion, water pollution, damage to fish, wildlife and other natural resources, air and water pollution, and hazards to public health and safety, under subsection h. However, there is no indication in this section of the basis on which the Chairman will approve or disapprove the plan.

The basis is presumably expressed in the general terms for exploration and mining in section 7.1. Subsection a. indicates that operations shall be conducted in conformity with the best practices and engineering principles in use in the industry, and in such a manner as to protect natural resources and obtain "maximum ultimate recovery of geothermal resources consistent with other uses of the land with minimal impact on the environment." What is best in practice of the industry should be judged in an overall sense. These are general instructions indeed. Maximum energy recovery and minimum environmental impact are to some extent mutually inconsistent aims, and there is no indication how the balance is to be made between augmentation of recovery and reduction of impacts.

Subsection c. requires that lessees and permittees take all reasonable precautions to prevent waste, damage to any natural resource (including vegetation and forests as well as the fish and wildlife mentioned in subsection a.), or degradation of the environment. How reasonableness is to be determined is, however, unspecified.

What practices will be best, what environmental impacts should be considered minimal, and what conservation measures are reasonable will depend, of course, on the nature and location of the development and on the conditions at and around its site. We note with approval the inclusion, among exhibits to be submitted with a geothermal mining lease application in section 4.3: a. a description and maps of the site, b. a description of the geothermal resource, and c. a report on the geology and water resources. The list of exhibits does not specifically include such descriptions as those of the wind field or the vegetation surrounding the site. However, most importantly, it requires in subsection 4.3e an assessment of the environmental impact of the development proposal, and in subsection 4.3g "Such other information as the Department advises the applicant to be necessary." Clearly a geothermal development is likely to have a significant impact on the environment. Hence it would be appropriate for the Department to require an Environmental Impact
Statement (EIS). EIS's are often considered as more substantial and costly documents than environmental assessments, but an adequate assessment must address the same topics as an EIS, and the most important distinction between assessments and EIS's is that the latter are subject to a public review process which, considering the certainties of the environmental impacts associated with geothermal development, seems highly appropriate.

Even those trial developments of geothermal energy that are considered exploration may have serious environmental impacts. However, Rule 4 of the proposed regulations does not cover geothermal exploration, and Rule 2, which relates to geothermal exploration permits, does not require the submission of an environmental assessment with the application for a permit. We strongly recommend the addition of the equivalent of sections 4.3e and 4.3g to the requirements for a permit in Rule 2.

The proposed regulations do not seem to recognize that the ultimate effectiveness and efficiency of a geothermal well field will depend upon the number and spacing of the wells throughout the field and not merely the number within the area that maybe covered by a single lease. The only restriction on numbers and spacing of wells appears to be that in subsection 7.6k, affecting a single lessee or permittee, which indicates that "Areas cleaned and graded for drilling and production facility sites shall be kept to a reasonable number and size, and be subject to state approval." The state should reserve the right to regulate the drilling of wells in adjacent leases in accordance with energy resource conservation needs, and not merely within a single lease on the basis of reasonableness.

Whereas all exploratory geothermal wells will be subject to the proposed regulations, we note with concern that, in the case of production wells, the scope of the regulations is restricted to those on state lands or on lands in which the state has mineral reservations.

We are informed by Dr. Kamins that a significant portion of land area in Puna is not subject to a mineral reservation by the state -- in fact this is the situation at the exploratory drill site. If this is so, then a future geothermal field may be developed on lands not subject to these regulations, and so their purpose would be negated.

To remedy this shortcoming of the draft regulations, we suggest that they be broadened to include production drilling on private lands. Such application is justified on two grounds:

1. Protection of the geothermal resource itself: Since geothermal "resources" are in the form of reservoirs of heat or hot water, possibly extending over wide areas, it is a proper concern of the state that any reservoir be tapped in a manner which is not wasteful or destructive of the resources extending under lands adjacent to that in which the developing well is drilled, whether these lands are owned by the state or by others. The analogy with oil deposits is helpful for visualizing the problem.
2. Protection of the environment: Pollution of the air or groundwater is equally a concern of the state whether it results from operations on private or on public land.

Section 3.2 of the proposed regulations would make available for geothermal exploration all lands owned by the State and all in which the State owns the mineral rights, with the exception of lands designated as natural area reserves and such other lands as the Board of Natural Resources may withdraw from availability.

It should be noted:

a. That the designation of natural area reserves has been extremely slow; and

b. That geothermal development may be inappropriate in such other lands as State Parks.

The provisions of section 4.7 for public notice of geothermal mining leases applications on State lands may be critical to appropriate decisions on the withholding of lands under the discretionary provision of subsection 3.26. It would be desirable to require a public hearing as well.

The proposed regulations as now drafted include two probably unintended coverages.

First, the definition of "well" in section 1.6 limits its application in the proposed regulations to geothermal wells in the case of new wells but not in the case of "converted producing" wells or "reactivated or converted abandoned" wells. The effect would be to make a well that was originally drilled for water, abandoned, but subsequently reactivated, still for the production of water, subject to the geothermal regulations. This was surely not intended.

Second, section 2.1 of the proposed regulations would require a permit for exploration "by any means whatever, on, in, or under any land in the State of Hawaii to detail, test, or assess geothermal resources..." It should be pointed out that, as now written, this requirement would apply to any measurement of groundwater temperature or ground temperature below the level of seasonal temperature change, or any assessment of geothermal resources based on previous geologic or geophysical field observations or theoretical considerations. For a permit, even in the case of such investigations, a fee of $100 would be charged according to section 2.1. We strongly recommend that the exploration activities requiring a permit exclude such investigations.
Subject: Testimony to State of Hawaii Board of Land and Natural Resources at Public Hearing May 4, 1976 in Honolulu on Draft Regulations relating to Geothermal Energy.

To: Chairman, Christopher Cobb

From: George M. Sheets, President, Geothermal Energy Association -- a national trade and industry association.

Mr. Chairman:

My testimony relates to both general and specific aspects of the draft regulations now under consideration by this body.

Speaking for the association, it is gratifying to know that it is the intention of this body and the present administration of the state government to encourage development and use of this vital energy resource. These regulations, in slightly modified form, will go far in realizing this intention. You obviously realize also the urgency surrounding the need for the kind of clarity of rules and regulations that is needed as part of this encouragement. Your staff is to be congratulated for the dedication it has shown in reaching the present state of draft regulations which demonstrate keen understanding of, and insight into, the problems involved. As we all understand, the intention to encourage development of the geothermal resources of Hawaii must at all times be done in concert with the larger public interest, therefore making the task all the more difficult.

A few general comments are in order before a recitation of more specific references to the Draft Regulations:

Item 1. The scope of the regulations purports to cover only resources and issuing permits for geothermal exploration "on lands under jurisdiction of the Board of Land and Natural Resources" and this would appear superficially to be the limits of your jurisdiction. There is, however, a potential underlying jurisdiction over a broader category of land arising out of reservations made at the time of the Great Mahele. And this may include jurisdiction over the resources in land never in a status of being state lands or in any way subject to statutory reservation; but which may come under the "by implication" language in the definition of "Reserved Lands".

It would seem, in view of the broad spectrum of problems latent in this area, that the State Government might well be prepared to enter into some form of escrow agreement in all cases of geothermal leasing of private land as well, in order to give assurance to operators and investors that they are not in jeopardy of having contracted with wrong party regarding ownership of the resources. (I would so advise any client who should seek my advice on the matter.) However, at present I am not privy to any knowledge that the State is prepared to so act. Delay is possible in realization of the benefits of this resource, in absence of such a legal device being available readily.
Briefly a number of possibilities exist, and I realize that this Board does not have absolute power to act, but as the lead agency it could initiate or stimulate such action:

1. A direct investment in exploration and development to a level, possibly reaching 20 to 50 million dollars.

2. A direct moratorium on royalty payments, on a diminishing scale, such as 100% for two years and, let us say, 80% the third year, 60% the fourth year diminishing to no subsidy in the 8th or 10th years, for a limited number of early developments.

3. An indirect moratorium on payments of royalties based on a certain level of power produced, on a commensurate scale; or on, let us say, the first comparable amount of total power from all geothermal projects, on a Statewide basis. For example, the first 100 hundred megawatts for one or two years of production.

These are given as food for thought rather than as firm commitments from the industry. It would take a fine-tuned economic analysis to determine a rational formula, taking into account the state of money markets, the quality of the resource, the effect of remoteness geographically, and the timing relative to action in other geothermally interesting areas, as well as many other affecting factors at a given time. All in all, this presents potential imaginative possibilities not in force in other states, but not unknown in other countries.

In terms of more specific commentary on the Draft regulations the following paragraphs raised questions:

Rule 2. From the standpoint of a potential developer-operator the need for confidentiality of information given in order to acquire a permit is vital. A great deal of proprietary information will be given with the application which, if it falls into the hands of competitors, could be quite costly in terms of encouraging early development. In many cases a knowledgeable competitor would be able to derive all he needs to know from the required submission in order to acquire a free competitive position. This being the case, many potentially able operators in the field will tend to stay away from Hawaii. This is particularly true when one considers par. 2.8, and latter public auction provisions.

Rule 3. The question of private land and the policy position of the State is again latent in 3.4. The general policy of the Board as to 3.5 might well be more encouraging if it could early on be determined to be strongly inclined toward favoring occupiers rights so that potential operators could plan with this in mind in order to protect their investment in exploration. As a matter of reliable policy, this kind encouragement could be vital.

A matter of timing also enters into both Rule 2 & 3. That is, a time limit on approval should be made part of the Rules. Any delay is costly, and a maximum reasonable time for consideration should be 30 days after proper application is filed.

The limit on overriding royalty in Rule 3 is probably to low is view of experience in the industry. Commonly a 1/18th interest is reserved by parties in such interest. In fact, the economics of the project will tend to control this royalty, in any case.
MEMORANDUM

To: Mr. Christopher Cobb, Chairman
   Department of Land & Natural Resources

From: Deputy Director for Environmental Health

Subject: Proposed Rules and Regulations Governing Geothermal Exploration, Mining and Leasing on State and Reserved Lands in Hawaii

Thank you for allowing us to review and comment on the subject proposed rules and regulations. Please be advised that we are not opposed to these rules and regulations for geothermal development.

Our major area of concern in regard to geothermal development is the emission of sulfur compounds. If sulfur emissions are anticipated, a permit from the Department of Health will be required. This requirement should be made clear in the subject proposed rules and regulations. Pre-development sulfur dioxide monitoring and monitoring during the development process may be required as part of the permit conditions.

We realize that the statements are general in nature due to preliminary plans being the sole source of discussion. We, therefore, reserve the right to impose future environmental restrictions on any facility engaging in the subject activities at the time final plans are submitted to this office for review.

If you should have any questions, please call Harold Youngquist at 548-6410/6411.

JAMES S. KUMAGAI, Ph.D.
STATE OF HAWAII  
BOARD OF LAND AND NATURAL RESOURCES  
Honolulu, Hawaii  
REGENERATION OF GEOTHERMAL EXPLORATION, MINING AND LEASING  
ON STATE AND RESERVED LANDS IN HAWAII

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1.1 Purpose.

The purpose of these regulations is to prescribe uniform procedures for issuing permits for geothermal exploration and granting leases for geothermal mining on lands under the jurisdiction of the Board of Land and Natural Resources.

1.2 Authority.

These rules are promulgated pursuant to the jurisdiction and authority of the Board of Land and Natural Resources provided in Chapter 182 of the Hawaii Revised Statutes.

1.3 Incorporation by Reference.

Any document or part therein incorporated by reference herein is a part of these regulations as though set out in full.

1.4 Revision.

These regulations may be revised or repealed at any time by the Board in accordance with provisions of Chapters 91 and 182 of the Hawaii Revised Statutes. However, any revision to these regulations changing the rental or royalty due the State of Hawaii or changing the term of mining leases shall not adversely affect valid leases existing on the effective date of the revision.

1.5 Legal Conflicts.

Nothing in these regulations shall be construed as superseding Chapter 91, Chapter 182, Chapter 183-41, and Chapter 205, Hawaii Revised Statutes, as amended.

1.6 Definitions.

For purposes of these regulations, unless otherwise indicated herein by express term or by context, the term:

"Geothermal resources" means the natural heat of the earth, the energy, in whatever form, below the surface of the earth present in, resulting from, or created by, or which may be extracted from, such natural heat, and all minerals in solution or other products.
obtained from naturally heated fluids, brines, associated gases and steam, in whatever form, found below the surface of the earth, but excluding oil, hydrocarbon gas or other hydrocarbon substances.

"Board" means the Hawaii Board of Land and Natural Resources.

"Department" means the Hawaii Department of Land and Natural Resources.

"Chairman" means the Chairman of the Board of Land and Natural Resources.

"State lands" includes without limitation lands the surface rights to which are in the State of Hawaii and under the jurisdiction and control of the Board or under the jurisdiction and control of any other state body or agency, having been obtained from any source and by any means whatsoever.

"Reserved lands" includes lands the surface rights to which have been disposed of permanently, or under present contract of sale, or under lease, but all subject to a reservation to the State of Hawaii, expressly or by implication, of the minerals or right to mine minerals, or both.

"Person" means a United States citizen of legal age, or any firm, association or corporation which is qualified to do business in the State of Hawaii, and is not in default under the laws of the State of Hawaii, relative to qualifications to do business within this State, and governmental units.

"Occupier" means any person entitled to the possession of land under a certificate of occupation, a nine hundred and ninety-nine year homestead lease, a right of purchase lease, a cash freehold agreement, or under a deed, grant, or patent, and any person entitled to possession under a general lease, and also means and includes the assignee of any one of the above.

"Mining operations" means the process of drilling, extraction, and development of geothermal resources and any by-products, design engineering, other engineering, erection of transportation facilities and port facilities, erection of necessary structures, buildings, plants, and other necessary facilities connected with the development of geothermal resources.

"Mining lease" means a lease of the right to conduct geothermal mining operations on state lands and on other lands sold or leased by the State or its predecessors in interest with an expressed or implied reservation of mineral rights to the State.

"Operator" means the person having control or management of exploration or mining operations under lease or permit.

"Well" means any well drilled for the purpose of exploration, discovery, observation, production, or injection of geothermal resources; or any converted producing well; or any reactivated or converted abandoned well.
"Suspension of operations" means the cessation of drilling, redrilling, or alteration of casing before the well is officially abandoned or completed.

1.7 Geothermal Policy.

With the adoption of these rules and regulations, it shall be the policy of the Board to encourage the exploration, development and use of geothermal resources in a manner that will provide for the optimum use of the land with appropriate protection of the environment and natural resources including geothermal, ground water, fish and wildlife, and forests.

RULE NO. 2
GEOTHERMAL EXPLORATION PERMITS

2.1 Exploration Permit Required.

No person shall explore by any means whatever on, in, or under any land in the State of Hawaii to detect, test, or assess geothermal resources without a permit issued pursuant to these regulations.

2.2 Application for Exploration Permits.

Any person may apply for an original, amended, or renewal exploration permit by submitting a written application to the Board. All applications must be signed by the applicant and shall be accompanied by all necessary exhibits. Maps shall be in reproducible form. An applicant may be required to show that all applicable State laws and regulations have been complied with up to the date of application.

2.3 Permit Filing Fee.

Each application shall be accompanied by a non-refundable filing fee in the amount of $100.

2.4 Permit Application Exhibits.

The applicant shall submit as exhibits to the exploration permit application the following:

a. Evidence of insurance, naming the State of Hawaii and the applicant as co-insured, against liability for injury to the property and environment of the State of Hawaii, and the death or bodily injury of employees of the applicant. The amount of insurance coverage which must be evidenced is dependent upon the number of acres covered by the application, as follows:

One acre to 500 acres - $20,000, $40,000, $20,000.

Greater than 500 acres - $50,000, $100,000, $50,000.

b. A corporate surety bond of not less than $1,000 conditioned upon compliance with all the terms on the exploration permit.
c. A plan of exploration describing planned exploration methods, dates of exploration, temporary construction, ingress and egress, types of equipment to be used, size and number of vehicular and other equipment to be used, and manpower requirements.

d. Detailed description of the area, including terrain; vegetative cover; State land use designation, county zoning, current land status and occupiers, if any.

e. Appropriate tax key maps and USGS 7.5-minute topographic quadrangle maps showing clearly and accurately the proposed area and sites of exploration.

2.5 Number of Permits.

There are no limitations as to the number of permits which may be applied for.

2.6 Approval of Permit Applications.

The approval of an application for a geothermal exploration permit shall include, but not necessarily be limited to, the following procedures:

a. Upon receipt of an application for a geothermal exploration permit, the department shall cause copies of the application to be sent to the surface rights holder, occupier, and to affected State and local government agencies and to such other agencies or persons that the department deems appropriate.

b. The surface rights holder, occupier, and agencies shall be requested to respond within 30 days with a recommendation that the permit either be granted or denied. The department, surface rights holder, occupier and other government agencies may recommend conditions to be contained in the exploration permit to satisfy requirements within their respective statutory jurisdictions. Applicants will be advised on conditions recommended by State and local agencies and, when deemed advisable by the department, a conference between agencies and applicant will be held.

c. The department shall make such other investigations as it deems necessary.

d. If a State agency other than the department occupies the lands being applied for, such agency may recommend against granting a permit for geothermal exploration if it shows good reason that geothermal development subsequent to exploration would not be in the best public interest.

2.7 Duration of Permits.

Geothermal exploration permits shall expire two years from date of issuance; and at the discretion of the Board may or may not be renewed for an additional two years.

2.8 Non-Exclusive Permits.

Geothermal exploration permits allow only non-exclusive access to land for geothermal exploration purposes.
2.9 **Departmental Investigation.**

The department may conduct scheduled and unscheduled inspections and investigations of operations conducted under geothermal exploration permits.

2.10 **Suspension of Permits.**

The Chairman may issue an order immediately suspending operations conducted under a geothermal exploration permit if:

a. The permittee remains in violation of the regulatory requirements of the department, the Office of Environmental Quality Control, the Hawaii Departments of Health, Labor and Industrial Relations, and Taxation, or other legally constituted authority, in excess of 30 days after notice in writing from the appropriate agency.

b. The permittee is in violation of any exploration permit terms or conditions which, in the judgment of the Chairman, jeopardizes the public health, safety, and welfare.

2.11 **Cancellation of Permits.**

The department may cancel a geothermal exploration permit if it finds, after notice to the permittee and allowance for an opportunity for hearing, that:

a. Permit requirements are not being observed after notification to the permittee.

b. False information was submitted in the application, application exhibits, or other required reports.

**RULE NO. 3**

**GEOTHERMAL MINING LEASES**

3.1 **Geothermal Mining Lease Required.**

No person shall drill for exploratory development or production; or extract, develop, or dispose of any geothermal resources from any lands owned by the State or any lands owned by any person in which the State has reserved to itself, expressly or by implication, the minerals or the right to mine minerals, or both; without a mining lease issued under these rules and regulations.

3.2 **Geothermal Resources Available for Leasing.**

All State and reserved lands which the Board determines to have known geothermal resources shall be considered available for geothermal mining leases. The existence of a geothermal discovery or producing well or natural geothermal occurrence at the surface in the immediate vicinity of lands applied for shall be the primary evidence for determining that "known geothermal resources" exist for purposes of these regulations. Exceptions to such lands available for leasing include:
a. Lands designated as natural area reserve.

b. Lands that the Board may in its discretion withdraw from availability for leasing in the public interest, such as withdrawing lands for research and development or pilot demonstration projects.

3.3 Qualified Applicants.

Any person shall be qualified to lease the geothermal resources in State lands or reserved lands or take or hold an interest therein unless the Board first determines, after notice and hearing, for good cause shown, that a person is disqualified from leasing or taking or holding an interest in geothermal resources in State lands or reserved lands. No member of the Board, the Chairman, or employee of the Department may take or hold any lease or interest in State lands.

3.4 Mining Leases by Public Auction.

All geothermal mining leases shall be issued upon a competitive bid basis at public auction, except as provided in Rule 3.5.

3.5 Mining Leases Without Public Auction.

In the case of reserved lands, the Board may grant a geothermal mining lease without public auction to the occupier thereof or his assignee of the rights to obtain a mining lease if approved by two-thirds of the voting members of the Board; otherwise, by public auction as provided in Sections 182-4 and 182-5 of Chapter 182, Hawaii Revised Statutes, and Rule 4 of these Regulations.

3.6 Size of Leaseable Tract.

A geothermal mining lease shall be limited to any contiguous area of land not exceeding ten square miles; except that, as provided in Section 182-8, a mining lease shall be limited to four square miles of contiguous land if its boundaries are such that its longest dimension is six times or more its narrowest dimension.

3.7 Assignment of Mining Leases.

a. Any mining lease may be assigned in whole or in part, subject to the approval of the Board, to an assignee who shall have the same qualifications as any bidder for a mining lease. The assignee shall be bound by the terms of the lease to the extent as if the assignee were the original lessee. The approval of the assignment by the Board shall release the assignor from any liabilities or duties under the mining lease as to the portion thereof assigned except for any liability or duty which arose prior to the approval of the assignment by the Board and which remains unsatisfied or unperformed.

b. No assignment shall be effective until written approval is given. An assignment shall take effect the first day of the month following the approval of the assignment.
c. A lease may be assigned as to all or part of the acreage included therein to any person qualified to hold a State lease, provided that neither the assigned nor the retained part created by the assignment shall contain less than 40 acres. No undivided interest in a lease of less than 10% shall be created by assignment.

d. In an assignment of the complete interest in all of the lands in a lease, the assignor and his surety shall continue to be responsible for performance of any and all obligations under the lease until the effective date of the assignment. After the effective date of any assignment, the assignee and his surety shall be bound by the terms of the lease to the same extent as if the assignee were the original lessee, any conditions in the assignment to the contrary notwithstanding.

e. An assignment of the record title of the complete interest in a portion of the lands in a lease shall clearly segregate the assigned and retained portions. After the effective date, the assignor is released and discharged from any obligations thereafter accruing with respect to the assigned lands. Such segregated leases shall continue in full force and effect for the primary term of the original lease or as further extended pursuant to the terms of these rules.

f. Where an assignment does not segregate the record title to the lease, the assignee, if the assignment so provides, may become a joint principal on the bond with the assignor. The application must also be accompanied by a consent of assignor's surety to remain bound under the bond of record, if the bond, by its terms, does not contain such consent. If a party to the assignment has previously furnished a statewide bond, no additional showing by such party is necessary as to the bond requirement.

g. An assignment must be a good and sufficient legal instrument, properly executed and acknowledged, and should clearly set forth the serial number of the lease, the land involved, the name and address of the assignee, the interest transferred and the consideration. A fully executed copy of the instrument of assignment must be filed with the application for approval. An assignment must affect or concern only one lease or a portion thereof, except for good cause shown.

h. The application for approval of an assignment must be on forms provided by the Department or exact copies. It must be accompanied by a signed statement by the assignee either (1) that he is the sole party in interest in the assignment, or (2) setting forth the names and qualifications of the other parties taking an interest in the lease. Where the assignee is not the sole party in interest, separate statements must be signed by each of the other parties and by the assignee setting forth the nature and extent of the interest of each party and the nature of the agreement between them. If payments out of production are reserved, a statement must be submitted stating the details as to the amount, method of payment, and other pertinent items. These separate statements must be filed in the office of the Department in Honolulu not later than fifteen (15) days after the filing of the application for approval.

i. If the lease account is not in good standing at the time the assignment is reached for action, the request for approval of the assignment will be denied, and the lease shall be subject to termination in accordance with these rules.
j. All applications for approval of assignments must be accompanied by a non-refundable fee of $100.00 for each assignment.

3.8 Revocation of Mining Leases.

A geothermal mining lease may be revoked if the lessee fails to pay rentals when due or if any of the terms of the lease or of law are not complied with, or if the lessee wholly ceases all mining operations without the written consent of the Board for other than reasons of force majeure or the uneconomic operation of the mining lease for a period of one year. However, the Board shall give the lessee notice of any default and the lessee shall have six months from the date of the notice to remedy the default before revocation of the lease.

3.9 Surrender of Mining Leases.

Any lessee of a geothermal mining lease, who has complied fully with all the terms, covenants, and conditions of the existing lease, may, with the consent of the Board surrender at any time and from time to time all or any part of the mining lease or the land contained therein upon payment as consideration therefor two years' rent prorated upon the portion of the lease or land surrendered and as otherwise specified in Section 182-15 of Chapter 182, HRS. A geothermal mining lease may also be surrendered if as a result of a final determination by a court of competent jurisdiction, the lessee is found to have acquired no rights in or to the minerals on reserved lands, nor the right to exploit the same.

3.10 Number of Mining Leases.

There shall be no limit upon the number of geothermal mining leases that may be granted to any person undertaking any geothermal mining operation, as specified in Section 182-8 of Chapter 182, Hawaii Revised Statutes.

3.11 Geothermal Mining Lease Terms.

The terms and conditions of all geothermal mining leases shall be approved by the Board as provided in Chapter 182 and as the Board may in addition deem appropriate or in the public interest.

3.12 Duration of Geothermal Mining Leases.

a. The primary term of a geothermal mining lease shall be ten years from the effective date of the lease. The effective date of the lease shall be the first day of the month in which the lease is auctioned or in which the Board formally approves the issuance of a lease.

b. If, at the expiration of the primary term of the lease, geothermal resources are not being produced or demonstrably capable of being produced from the leased land, but the lessee is actively engaged in drilling operations to 1,000 feet or deeper, then the lease shall continue in force so long as drilling operations are being diligently and continuously prosecuted on the leased land or upon lands with which the leased land is utilized. Drilling operations shall be considered to be diligently and continuously prosecuted if not more than 120 days shall elapse between the completion or abandonment of one well and the beginning of operations for the drilling of another well. For good cause shown, the Chairman may extend the time for an additional period, not to exceed 120 days. A written request must be received by the Chairman at least 10 calendar days before the expiration of the initial 120-day period.
c. If at the expiration of the primary term of the lease, geothermal resources are being produced or utilized in paying quantities, that lease shall continue for so long thereafter as geothermal resources are produced or utilized in paying quantities, but the duration of the lease shall in no event continue for more than 55 years after the end of the primary term. Production or utilization of geothermal resources in paying quantities shall be deemed to include the completion of one or more wells producing or capable of producing geothermal resources for delivery to or utilization by a facility or facilities not yet installed, but scheduled for installation.

d. Lessee shall use due diligence to market or utilize geothermal resources in paying quantities. If leased land is capable of producing geothermal resources in paying quantities, but production is shut-in, the lease shall continue in force upon payment of rentals for the duration of the primary term or five (5) years after shut-in, whichever is longer. If the Chairman determines that the lessee is proceeding diligently to acquire a contract to sell or to utilize the production or is progressing with installations needed for production, the lease shall continue in force for an additional five (5) years, upon payment of rentals, otherwise the lease may be terminated by the Board. The Chairman shall continue to review shut-in leases every five (5) years until production and payment of royalties takes place or the lease is terminated by the Board for lessee's lack of due diligence or surrendered by the lessee.

e. A lease that has been extended by reason of production or utilization of geothermal resources and which has been determined by the Chairman to be incapable of further commercial production and utilization may be further extended for five (5) years if one or more valuable by-products are produced in commercial quantities. The Board may extend the lease for one or more additional five (5) year terms upon such terms and conditions as the Board deems fit to allow continued production of one or more valuable by-products in commercial quantities.

3.13 Rentals.

a. Lessee shall pay to the State of Hawaii in advance each year the annual rental bid for each acre or fraction thereof under lease. The annual rental for the first year of the term shall be due and payable and shall be received in the offices of the Department in Honolulu, together with a lease agreement executed by lessee within thirty (30) days of the date of notice of approval or award. The Department will notify the applicant or his representative designated in the application to lease by certified or registered mail of the Board's approval of a lease and specify the exact amount of rental due thereon and the bond requirement under Rule 3.16. Failure to return an executed lease together with the first year rental and bond within thirty (30) days shall result in automatic rejection of the application without further action of the Chairman or Board. Second year and subsequent rental payments must be received in the office of the Department in Honolulu on or before the anniversary date of the lease. Failure to pay exact rental shall constitute grounds for immediate termination of the lease by the Chairman who shall note the termination on the official records of the Department.
b. Annual rentals for each acre or fraction thereof under lease shall be at the price bid at public auction based on an upset price as follows:

- $1.00/yr. - for the first five (5) years;
- $2.00/yr. - for the second five (5) years;
- $3.00/yr. - thereafter;

which rental shall be deducted from production royalties as they accrue during that lease year, if there be any. The rental shall not be recoverable from future production.

3.14 Royalties.

a. The lessee shall cause to be paid to the State of Hawaii the following royalties on the value of geothermal production from the leased premises:

(1) A royalty of 10 per centum of the amount or value of geothermal resources, or any other form of heat or energy derived from production under the lease and sold or utilized by the lessee or reasonably susceptible to sale or utilization by the lessee, unless used or consumed by lessee in his production operations;

(2) A royalty of 5 per centum of the amount or value of any associated by-product derived from production under the lease and sold or utilized or reasonably susceptible of sale or utilization by the lessee, including commercially demineralized water, except that no payment of a royalty will be required on such water if it is used in plant operation for cooling or in the generation of electric energy or otherwise. No royalty shall be paid for associated by-products used or consumed by lessee in his production operations.

b. The value of geothermal production from the leased premises for the purpose of computing royalties shall be the following:

(1) The total consideration accruing to the lessee from the sale thereof in cases where geothermal resources are sold by the lessee to another party in an arms-length transaction; or

(2) The value of the end product attributable to the geothermal resource produced from a particular lease where geothermal resources are not sold by the lessee before being utilized, but are instead directly used in manufacturing power production, or other industrial activity; or

(3) When a part of the resource only is utilized by the lessee and the remainder sold, the sum of (1) and (2) immediately above.

c. Lessee shall within 15 days notify the Chairman of the discovery upon the leased premises of geothermal resources before any such geothermal resources are used or removed for commercial purposes from the leased land or utilized thereon.

d. Royalties will be due and payable monthly in the office of the Department in Honolulu on or before the last day of the calendar month following the month in which the geothermal resources and/or their associated by-products are produced and utilized or sold.
e. The lessee shall file with the Chairman within thirty (30) days after execution a copy of any contract for the disposal of geothermal resources from the lease. Reports of sales or utilization by lessee and royalty for each productive lease must be filed each month once production begins, even though production may be intermittent, unless otherwise authorized by the Chairman. Total volumes of geothermal resources produced and utilized or sold, including associated by-products, the value of production, and the royalty due the State of Hawaii must be shown. This report is due on or before the last day of the month following the month in which production was obtained and sold or utilized, together with the royalties due the State of Hawaii.

f. The lessee shall measure or gauge all production in accordance with methods approved by the Chairman. The quality and quality of all production shall be determined in accordance with the standard practices, procedures and specifications generally used in industry. All measuring equipment shall be tested consistent with industry practice and, if found defective, the Chairman will determine the quantity and quality of production from the best evidence available.

g. The lessee shall periodically furnish the Chairman the results of periodic tests showing the content of by-products in the produced geothermal resources. Such tests shall be taken as specified by the Chairman and by the method of testing approved by him, except that tests not consistent with industry practice shall be conducted at the expense of the State of Hawaii.

h. The Board may authorize a lessee to commingle production from wells on his lease with production from other leases held by him or by other lessees subject to such conditions as he may prescribe, but lessee shall not do so without the Board's approval.

3.15 Overriding Royalty Interests.

a. Overriding royalty interests in geothermal leases constitute accountable acreage holdings under these regulations. If an overriding royalty interest is created which is not shown in the instrument of assignment or transfer, a statement must be filed with the Chairman describing the interest. Any such assignment will be deemed valid if accompanied by a statement over the assignee's signature that the assignee is a person as defined in these rules and that his interests in geothermal leases do not exceed the acreage limitations provided in these rules. All assignments of overriding royalty interests without a working interest and otherwise not contemplated by Rule 3.7 must be filed for record in the office of the Department in Honolulu within ninety (90) days from the date of execution. Such interests will not receive formal approval.

b. No overriding royalty on the production of geothermal resources created by an assignment contemplated by Rule 3.7 or otherwise shall exceed 5 percent nor shall an overriding royalty, when added to overriding royalties previously created, exceed 5 percent.

c. The creation of an overriding royalty interest that does not conform to the requirements of this rule shall be deemed a violation of the lease terms, unless the agreement creating overriding royalties provides for a prorated reduction of all overriding royalties so that the aggregate rate of overriding royalties does not exceed 5 percent.
d. In addition to the foregoing limitations, any agreement to create or any assignment creating royalties or payments out of production from the leased lands shall be subject to the authority of the Chairman, after notice and hearing, to require the proper parties thereto to suspend or modify such royalties or payments out of production in such manner as may be reasonable when and during such periods of time as they may constitute an undue economic burden upon the reasonable operations of such lease.

3.16 Bond Requirements

a. Performance Bonds: Concurrent to the execution of the lease by the lessee, lessee shall furnish to Chairman a good and sufficient bond in the amount of Two Thousand Dollars ($2,000.00) in favor of the State of Hawaii, conditioned on the payment of all damages to the land surface and all improvements thereon, including without limitation crops on the lands, whether or not the lands under this lease have been sold or leased by the Board for any other purpose; conditioned also upon compliance by lessee of his obligations under this lease and these rules. Prior to initiation of operations to drill a well for any purpose, lessee shall increase such bond to the amount of Ten Thousand Dollars ($10,000.00). The Chairman may require a new bond in a greater amount at any time after operations have begun, upon a finding that such action is reasonably necessary.

b. Statewide Bond: In lieu of the aforementioned bonds, lessee may furnish a good and sufficient "statewide" bond conditioned as above in the amount of Fifty Thousand Dollars ($50,000.00) in favor of the State of Hawaii, to cover all lessee's leases and operations carried on under all Geothermal Mining leases issued and outstanding to lessee by the Board at any given time during the period when the "statewide" bond is in effect.

c. Operator's Bond: An operator or each operator, if more than one on different portions of a lease, may furnish a general lease bond of not less than Ten Thousand Dollars ($10,000.00) in his own name as principal on the bond in lieu of the lessee. Where there is more than one operator's bond affecting a single lease, each such bond must be conditioned upon compliance with all lease terms for that portion of the leasehold for which each operator is responsible. Where a bond is furnished by an operator, suit may be brought thereon without joining the lessee if he is not a party to the bond.

d. Duration of Bonds: The period of liability of any bond will not be terminated until all lease terms and conditions have been fulfilled and the bond is released in writing by the Chairman.

3.17 Liability Insurance.

Prior to entry upon the leased lands, lessee shall cause to be secured and to be thereafter maintained in force during the term of this lease, public liability and property damage insurance and products liability insurance in the sum of Two Hundred and Fifty Thousand Dollars ($250,000) for injury or death for each occurrence; in the aggregate sum of Five Hundred Thousand Dollars ($500,000) for injury or death; and in the sum of One Hundred Thousand Dollars ($100,000) for damages to property and products damage caused by any occupancy, use, operations or any other activity on leased lands carried on by lessee, its agents or contractors in connection therewith.
Explosion, collapse and underground hazards are to be included prior to initiation of operations to drill a well to 1,000 feet or deeper. Lessee shall evidence such additional coverage to the Chairman prior to initiation of drilling operations. If the land surface and improvements thereon covered by the lease have been sold or leased by the State of Hawaii, the owner or lessee of surface rights and improvements shall be a named insured. The State of Hawaii shall be a named insured in all instances. This policy or policies of liability insurance shall contain the following special endorsement:

"The State of Hawaii, the Hawaii State Board of Land and Natural Resources, the Chairman of the Board of Land and Natural Resources, the Department of Land and Natural Resources, and (herein insert name of owner or lessee of surface rights, if applicable) and the officers, employees and agents of each and every of the foregoing (hereinafter referred to as "additional insureds") are additional insureds under the terms of this policy, provided, however, the additional insureds shall not be insured hereunder for any primary negligency or misconduct on their part, but additional insureds shall be insured hereunder for secondary negligence or misconduct, which shall be limited to the failure to discover and cause to be corrected the negligence or misconduct of lessee, its agents or contractors. This insurance policy will not be cancelled without thirty (30) days prior written notice to the Hawaii Department of Land and Natural Resources. None of the foregoing additional insureds is liable for the payment of premiums or assessments on this policy."

No cancellation provision in any insurance policy shall be in derogation of the continuous duty of lessee to furnish insurance during the term of this contract. Said policy or policies shall be underwritten to the satisfaction of the Chairman. A signed complete certificate of insurance, with the endorsement required by this paragraph, shall be submitted to the Chairman prior to entry upon the leased land. At least thirty (30) days prior to the expiration of any such policy, a signed complete certificate of insurance, with the endorsement required by this paragraph, showing that such insurance coverage has been renewed or extended, shall be filed with the Chairman.

3.18 Hold Harmless.

Lessee shall expressly agree that the State of Hawaii, the Board, the Chairman, the Department, and the owner of the surface rights and improvements, if not the State of Hawaii, or State lessee of surface rights, if there be one, the officers, agents and employees of each and every one of the foregoing, shall be free from any and all liabilities and claims for damages and/or suits for or by reason of death or injury to any person or damage to property of any kind whatsoever, whether the person or property of lessee, its agents or employees, or third persons, from any cause or causes whatsoever caused by any occupancy, use, operation or any other activity on leased lands carried on by lessee, its agents or contractors, in connection therewith; and lessee shall covenant and agree to indemnify and to save harmless the State of Hawaii, the Board, the Chairman, the Department, owner or lessee of surface rights if there be one, and their officers, agents, and employees from all liabilities, charges, expenses (including counsel fees), and costs on account of or by reason of any such death or injury, damage, liabilities, claims, suits or losses.
3. Title.

The State of Hawaii does not warrant title to the leased lands or the geothermal resources and associated by-products which may be discovered thereon; the lease is issued only under such title as the State of Hawaii may have as of the effective date of the lease or thereafter acquire. If the interest owned by the State in the leased lands includes less than the entire interest in the geothermal resources and associated by-products for which royalty is payable, then the royalties provided for in the lease shall be paid to the State only in the proportion which its interest bears to said whole and undivided interest in said geothermal resources and associated by-products for which royalty is payable; provided, however, that the State is not liable for any damages sustained by the lessee, nor shall the lessee be entitled to or claim any refund of rentals or royalties therefore paid to the State in the event that the State does not own title to said geothermal resources and associated by-products, or if its title thereto is less than whole and entire.

RULE 4
PROCEDURES FOR LEASING ON STATE LANDS

4.1 Application to Board.

Any person may apply for a geothermal mining lease on lands described in Rule 3.2. The applicant shall submit three copies of a written application on forms provided by the Department and all application forms must be completed in full, signed by the applicant or his authorized representative with proof of authorization, three (3) copies of all necessary exhibits, and the filing fee.

4.2 Lease Application Filing Fee.

Each application for a geothermal mining lease shall be accompanied by a nonrefundable filing fee in the amount of $100.00.

4.3 Lease Application Exhibits.

Each application for geothermal mining lease shall be accompanied by the following exhibits:

a. An accurate description and map of the land desired to be leased.

b. Description of the known geothermal resource.

c. A geologist's report on the surface and sub-surface geology, faulting, nature of the geothermal resource, surface water resources, and ground water resources; and opinion on probability of adverse effects from geothermal resource development.

d. A detailed description of the proposed geothermal drilling, mining and development proposed for leasing; proposals for monitoring and surveillance of the drilling, mining and development; and protection of ground water and other natural resources, and the environment.

e. An assessment of the environmental impact of the mining proposal.
f. A copy of a valid geothermal exploration permit issued to the applicant for the area sought to be leased.

g. Such other information as the Department advises the applicant to be necessary.

4.4 **Incomplete Application.**

Applications which are incomplete as to identity of applicant, signature of applicant, not accompanied by the established filing fee, or not accompanied by all of the required application exhibits shall be returned to the applicant with an explanation of the reasons for incompleteness.

4.5 **Consideration of Application.**

Upon receipt by the Department of a satisfactorily completed notice of application for geothermal mining lease, the Board shall consider the merits of the application and its accompanying exhibits and shall either reject it with an explanation of the reasons for rejection or accept it for further consideration.

4.6 **Consideration by Others.**

The acceptance of an application for further consideration by the Board shall include, but not necessarily be limited to, the following procedures:

a. Upon acceptance of an application for further consideration by the Board, the Department shall cause copies of the application with accompanying exhibits to be sent to the surface rights holder or occupier and to affected State and County agencies including the Office of Environmental Quality Control, Department of Planning and Economic Development, Department of Health, the affected County Planning Department, and to such other agencies or persons that the Board deems appropriate.

b. The surface rights holder or occupier and agencies shall be requested to respond within 30 days with a recommendation for or against the applicant's mining lease proposal. Agencies may also recommend conditions to be contained in the lease to satisfy requirements within their respective statutory jurisdiction. Such conditions recommended by affected agencies may, if the Board deems appropriate, be made a part of any lease granted.

c. The Department shall make any other investigations it deems appropriate.

4.7 **Public Notice of Lease Application.**

Upon preliminary acceptance of an application for a geothermal mining lease as stated in Rule 4.5, the Board shall cause a notice to be published in the newspaper of general circulation in the County where the lands are located, at least once in each of three successive weeks describing the lands for which a mining lease is requested, the geothermal resources desired to be leased, and the applicant's proposed mining operations. The public shall also be notified of its opportunity to review the applicant's application for a geothermal mining lease and submit written comments to the Department.
4.8 Rejection of Lease Application

Upon receipt of all information requested and obtained by investigation, the Board, as soon as practicable, shall determine whether or not the proposed mining operation and lands to be leased would be of greater benefit to the State than the existing or reasonably foreseeable future use of the land being applied for. If the Board determines that the existing or reasonably foreseeable future use of the land being sought for lease would be of greater benefit to the State than the proposed mining use of the land, it shall disapprove the application for a mining lease of the land without putting the land to auction.

4.9 Approval of Mining Lease by Public Auction.

If the Board determines that the proposed mining use of the land would be of greater benefit to the State than the existing or reasonably foreseeable future use of the land sought to be auctioned, the Board shall cause a notice of public auction to be published in a newspaper of general circulation in the State at least once in each of three successive weeks, setting forth the description of the land, the minerals to be leased, and the time and place of the auction. At least 30 days prior notice shall be given.

4.10 Public Auction of Mining Lease.

The Board shall determine the area to be offered for a geothermal mining lease and may modify the boundaries of the land area sought to be leased, after due notice of public hearing to all parties and interests. The Board shall approve the mining lease to be offered by public auction and shall set the terms and conditions of the lease as provided in Chapter 182 and as it may additionally deem appropriate. Bidders shall bid on the amount of annual rental for each acre or fraction thereof to be paid for the term of the mining lease based on an upset price as follows:

- $1.00 per year per acre, for the first five years;
- $2.00 per year per acre, for the second five years;
- $3.00 per year per acre, thereafter.

RULE 5

PROCEDURES FOR LEASING ON RESERVED LANDS

5.1 Application to Board.

Applications for geothermal mining lease on reserved lands, that is, lands owned or leased by any person in which the State has reserved to itself expressly or by implication the geothermal resources or right to mine geothermal resources, or both, shall be made to the Board in accordance with Rule 4.1 through 4.8.

5.2 Approval of Mining Lease by Public Auction.

a. If an application for a geothermal mining lease on reserved lands has followed Rules 4.1 to 4.8 and the Board has determined that for such application the proposed geothermal mining use of the land would be of greater benefit to the State than the existing or reasonably foreseeable future use of the land
sought to be leased, the Board has the option of approving the granting of the mining lease: (1) by public auction in accordance with Rule 5.2(b); (2) without public auction in accordance with Rule 5.3.

b. If the occupier or his assignee of the right to obtain a mining lease should fail to apply for a mining lease within six months from the date of notice from the Board of its finding that it is in the public interest that the geothermal resources in the reserved lands be mined, a mining lease shall be granted by public auction under Rule 4 and the bidders at the public auction shall bid on an amount to be paid to the State for a mining lease granting to the lessee the right to develop the geothermal resources reserved to the State.

5.3 Approval of Mining Lease Without Public Auction.

The Board may, by the vote of 2/3 of the voting members, grant a geothermal mining lease on reserved lands to the occupier thereof without public auction. Such a mining lease may be granted to a person other than the occupier if the occupier has assigned his rights to apply for a lease to another person, in which case only such an assignee may be granted a geothermal mining lease.

RULE 6
SURFACE RIGHTS AND OBLIGATIONS

6.1 Compensation to Occupiers.

a. The occupier of State or reserved lands leased by the Board shall be entitled to a reasonable rental from the mining lessee for the use of the surface for exploration and mining operations. Also, if the occupier suffers damage to his crops, his improvements, or the surface condition of the land caused by exploration and mining operations or by the failure of the mining lessee to properly restore the land after termination of operations, the occupier shall be reimbursed the full extent of the damages by the mining lessee; provided, that the occupier was not granted a mining lease without public auction as provided in Rule 5.3.

b. Before entering upon the leased lands for exploration or mining operations, the lessee of a mining lease must complete a satisfactorily written agreement with any occupier concerning rentals and damages to be paid to the occupier due to any exploration or mining operations, and such agreement must be approved by the Board.

c. However, any occupier of lands leased or to be leased by the Board shall have until thirty (30) days after the public auction of such lands, the option to notify the Board in writing of his or their desire to determine by arbitration the amount of rentals and damages to be paid to the occupier by the successful bidder or mining lessee. Such arbitration shall be in accordance with Chapter 658 of the Hawaii Revised Statutes.

6.2 Mining Lessee's Rights.

The lessee shall be entitled to use and occupy only so much of the surface of leased lands as may be required for all purposes reasonably incident to exploration for, drilling for, production and marketing of geothermal
resources and associated by-products produced from the leased lands, including the right to construct and maintain thereon all works, buildings, plants, waterways, roads, communication lines, pipelines, reservoirs, tanks, pumping stations or other structures necessary to the full enjoyment and development thereof, consistent with a plan of operations and amendments thereto, as approved by the Chairman.

6.3 General Conditions.

a. A mining lease shall not be construed to prohibit the leasing of the leased lands by the Board to other persons for grazing and agricultural purposes, or for the mining of minerals other than geothermal resources; provided that the lessee under a mining lease shall have paramount right as against grazing and agricultural lessees to the use of so much of the surface of the land as shall be necessary for the purposes of the mining lease. All lessees shall have the right of ingress and egress at all times during the term of the lease.

b. Use of State lands under the jurisdiction and control of the Board are subject to the supervision of the Chairman. Use of State lands under the control of other State agencies are subject to the supervision of the appropriate State agency consistent with these rules.

c. The Board reserves the right to sell or otherwise dispose of the surface of the lands embraced within a mining lease, insofar as said surface is not necessary for use by the lessee in his exploration, development and production of the geothermal resources and associated by-products, but any sale of surface rights made subsequent to execution of a mining lease shall be subject to all the terms and provisions of that lease during the life thereof.

d. The Chairman shall be permitted at all reasonable times to go in and upon the leased lands and premises, during the term of a mining lease, to inspect the operations and the products obtained from the leased lands and to post any notice that the Chairman may deem fit and proper.

e. During operations, the lessee shall regulate public access and vehicular traffic to protect human life, wildlife, livestock and property from hazards associated with the operations. For this purpose, the lessee shall provide warnings, fencing, flagmen, barricades, well and hole coverings and other safety measures as appropriate. Restrictions on access must be approved by the Chairman as part of the Plan of Operations required under Rule 7.2.

f. The mining lessee shall reclaim all State lands disturbed by exploration, development, operation and marketing of geothermal resources in accordance with lease terms and all State and local laws and regulations, existing and hereafter amended. Lessee shall conserve, segregate, stockpile and protect topsoil to enhance reclamation. Lessee shall take all necessary steps in the exploration, development, operation and marketing of geothermal resources to avoid a threat to life or property or an unreasonable risk to subsurface, surface or atmospheric resources.
RULE 7
EXPLORATION AND MINING OPERATIONS

7.1 General Terms.

a. The operator of a lease or a permit shall conduct all operations in a manner that will conform to the best practices and engineering principles in use in the industry. Operations shall be conducted in such a manner as to protect the natural resources including without limitation, geothermal resources, and to obtain efficiently the maximum ultimate recovery of geothermal resources consistent with other uses of the land with minimal impact on the environment. Operations shall be conducted with due regard for the safety and health of employees. The operator shall promptly remove from the leased lands or store, in an orderly manner, all scraps or other materials not in use and shall notify the Chairman of all accidents within 24 hours and submit a written report within 30 days.

b. The operator of a lease or permit shall comply with and be subject in all respects to the conditions, limitations, penalties and provisions of the laws of the United State the State of Hawaii and all valid ordinances of the city and counties applicable thereto.

c. The operator of a lease or permit shall take all reasonable precautions to prevent waste and damage to any natural resource including vegetation, forests, and fish and wildlife; injury or damage to persons, real or personal property; and degradation of the environment. The Chairman may inspect lessee's operations and issue such orders as are necessary to accomplish these purposes.

d. The Chairman is authorized to shut down any operation which he determines are unsafe or are causing or can cause pollution of the natural environment or waste of natural resources including geothermal resources upon failure by lessee to take timely, corrective measures previously ordered by the Chairman.

e. When required by the Chairman, the lessee shall designate a local representative empowered to receive service of civil or criminal process, and notices and orders of the Chairman issued pursuant to these rules.

f. In all cases where exploration or mining operations are not to be conducted by the lessee but are to be conducted under authority of an approved operating agreement, assignment or other arrangement, a designation of operator shall be submitted to the Chairman prior to commencement of operations. Such a designation will be accepted as authority of the operator or his local representative to act for the lessee and to sign any papers or reports required under these rules. All changes of address and any termination of the authority of the operator shall be immediately reported, in writing, to the Chairman.
7.2 Plan of Operations Required.

A lessee or permittee shall not commence operations of any kind whether for exploration, observation, assessment, development or other related mining activities prior to submitting to the Chairman and obtaining his approval of a Plan of Operations. Such a plan shall include:

a. The proposed location and elevation above sea level of derrick, proposed depth/bottom hole location, casing program, proposed well completion program and the size and shape of drilling site, excavation and grading planned, and location of existing and proposed access roads.

b. Existing and planned access, access controls and lateral roads.

c. Location and source of water supply and road building material.

d. Location of camp sites, air-strips and other supporting facilities.

e. Other areas of potential surface disturbance.

f. The topographic features of the land and the drainage patterns.

g. Methods for disposing of waste material.

h. A narrative statement describing the proposed measures to be taken for protection of the environment, including, but not limited to the prevention or control of (1) fires, (2) soil erosion, (3) pollution of the surface and ground water, (4) damage to fish and wildlife or other natural resources, (5) air and noise pollution, and (6) hazards to public health and safety during lease activities.

i. All pertinent information or data which the Chairman may require to support the Plan of Operations for the utilization of geothermal resources and the protection of the environment.

j. Provisions for monitoring deemed necessary by the Chairman to insure compliance with these rules for the operations under the plan.

k. The information required above for items (a) through (f) may be shown on a map or maps of 1:24,000 scale or larger.

7.3 Amendments to Plan of Operations.

An amended Plan of Operations shall be submitted by the operator for the Chairman's approval prior to any changes in operations, such as drilling deeper, plugging back a well, redrilling, perforating of casing, installation of generating plants, buildings, pipelines, roads, plants or structures for the production, marketing or utilization of geothermal resources.

7.4 Drilling Operations.

a. Upon commencement of drilling operations, the lessee or permittee shall mark each derrick and each completed well in a conspicuous place with his name or the name of the operator, the lease number and the number of the well. The lessee shall take all necessary means and precautions to preserve these markings.
b. The lessee or permittee shall diligently take all necessary precautions to keep all wells under control at all times; utilize trained and competent personnel; utilize properly maintained equipment and materials; and use operating practices which insure the safety of life and property. The selection of the types and weights of drilling fluids and provisions for controlling fluid temperatures, blowout preventers and other surface control equipment and materials, casing and cementing programs, etc., to be used shall be based on sound engineering principles and shall take into account apparent geothermal gradients, depths and pressures of the various formations to be penetrated and other pertinent geologic and engineering data and information about the area.

c. When necessary or advisable, the Chairman shall require that adequate samples be taken and tests or surveys be made using techniques consistent with industry practices, without cost to the State of Hawaii, to determine the identity and character of geologic formations; the quantity and quality of geothermal resources; pressures, temperatures, rate of heat and fluid flow; and whether or not operations are being conducted in a manner of best interest of the public.

d. Before any work is commenced to abandon any well, notice shall be given by the operator to the Chairman, which notice shall show the condition of the well and the proposed method of abandonment. No well may be abandoned without prior approval of the Chairman. However, the operator of a lease or permit shall promptly plug and abandon any well that is not used or deemed useful by the Board. No production well shall be abandoned until its lack of capacity for further profitable production of geothermal resources has been demonstrated to the satisfaction of the Chairman. A producible well may be abandoned only after receipt of written approval by the Chairman. Equipment shall be removed, and premises at the well site shall be restored as near as reasonably possible to its original condition immediately after plugging operations are completed on any well except as otherwise authorized by the Chairman. Drilling equipment shall not be removed from any well where drilling operations have been suspended without taking adequate measures to close the well and protect subsurface resources. Upon failure of lessee or permittee to comply with any requirements under this rule, the Chairman is authorized to cause the work to be performed at the expense of lessee or permittee and the surety.

7.5 Waste Prevention.

a. All mining leases shall be subject to the condition that the lessee will, in conducting his exploratory development and producing operations, use all reasonable precautions to prevent waste of geothermal resources and other natural resources found or developed in the leased lands.

b. The lessee shall, subject to the right to surrender the lease, diligently drill geothermal production wells on the leased lands as are necessary to protect the Board from loss by reason of geothermal production on other properties; or in lieu thereof, with the consent of the Chairman shall pay a sum determined by the Chairman as adequate to compensate the Board for failure to drill and produce any such wells on the leased lands. The lessee shall promptly drill and produce such other wells as the Chairman determines, a reasonably prudent operator would drill in order that the lease be developed and produced in accordance with good operating practices.
c. The Chairman shall determine the value of production accruing to
the Board where there is loss through waste or failure to drill and produce
protection wells on the lease, and the compensation due to the Board as
reimbursement for such loss. Payment for such losses will be paid when billed.

d. Subject to lessee's right to surrender the lease, where the Chairman
determines that production, use or conversion of geothermal resources under
a geothermal lease is susceptible of producing a valuable by-product or by-
products, including commercially demineralized water contained in or derived
from such geothermal resources for beneficial use in accordance with appli-
cable State water laws, the Chairman shall require substantial beneficial
production or use thereof, except where he determines that:

(1) Beneficial production or use is not in the interest of
conservation of natural resources;

(2) Beneficial production or use would not be economically
feasible; or

(3) Beneficial production and use should not be required
for other reasons satisfactory to him.

7.6 Protection of Other Resources.

a. The lessee or permittee shall remove the derrick and other equip-
ment and facilities within sixty (60) days after lessee or permittee has ceased
making use thereof in its operations.

b. All permanent operating sites where required shall be landscaped
or fenced so as to screen them from public view as far as possible. Such land-
scaping or fencing shall be approved in advance by the state and kept in good
condition.

c. All drilling and production operations shall be conducted in such
manner as to eliminate as far as practicable dust, noise, vibration, or noxious
odors. Operating sites shall be kept neat, clean and safe. Drilling dust shall
be controlled to prevent widespread deposition of dust. Detrimental material
deposited on trees and vegetation shall be removed. The determination as to
what is detrimental is a state responsibility.

d. Wastes shall be discharged in accordance with all Federal, State
and local requirements and prohibitions.

e. Any operations disturbing the soil surface, including road building,
construction, and movement of heavy equipment in support of or relating to
specific geothermal exploration or development activities shall be conducted
in such manner as will not result in unreasonable damage to trees and plant
cover, soil erosion, or degradation of water resources of the State.

f. Existing roads and bridges on or serving the area under lease or
permit shall be maintained in a condition equal to or better than that before use.
New roads and bridges shall be located, constructed, and maintained in accord-
ance with state specifications.

g. Timber damaged, destroyed, or used on the area under lease or
permit shall be compensated for at market value to the state. Borrow pit
material shall not be obtained from state lands without permission and payment
of market value.

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h. Improvements, structures, telephone lines, trails, ditches, pipelines, water developments, fences and other property of the state or other lessees or permittees, and permanent improvements and crops of surface owners, shall be protected from damage and repaired or replaced when damaged.

i. Access to drilling or production sites by the public shall be controlled by the lessee or permittee to prevent accidents or injury to persons or property.

j. Drilling mud shall be ponded in a safe manner and place, and where required by the state, posted with danger signs, and fenced to protect persons or property.

k. Areas cleared and graded for drilling and production facility sites shall be kept to a reasonable number and size, and be subject to state approval.

l. Lessee or permittee shall conduct its operations in a manner which will not interfere with the right of the public to use of public lands and waters.

7.7 Suspension of Operations.

In the event of any disaster or of pollution caused in any manner or resulting from operations under a lease or permit, lessee or permittee shall suspend any drilling and production operations, except those which are corrective, or mitigative, and immediately and promptly notify the Chairman. Such drilling and production operations shall not be resumed until adequate corrective measures have been taken and authorization for resumption of operations has been made by the Chairman. The lessee or permittee shall suspend any drilling and production operations, except those which are corrective or mitigative, if the Board shall determine that there is a substantial likelihood that continued operations would endanger public health or safety or cause serious damage to property or the natural environment. Such operations shall not be resumed until the Board shall determine that adequate corrective measures are feasible and have been taken to eliminate such substantial likelihood.

7.8 Diligent Operations Required.

The permittee or lessee shall be diligent in the exploration or development of the geothermal resources on the lands permitted or leased. Failure to perform diligent operations may subject the lease or permit to termination by the Board. Diligent operations mean exploratory or development operations on or related to the leased or permitted lands, including without limitation geochemical surveys, heat flow measurements, core drilling, or drilling of a test well. A report of all exploratory development operations and expenditures must be submitted to the Chairman at the close of each lease or permit year.

Beginning with the sixth year of the primary lease term, and each year thereafter, exploratory development operations, to qualify as diligent development, must entail expenses during that year equal to at least ten times the lease rental for the same year. Exploratory development expenses incurred during any year of the primary lease term in excess of those required herein may be credited toward diligent exploration during subsequent years of the primary lease term.
7.9 Records and Reports.

a. The lessee or permittee shall permit the Chairman or his representative to examine during reasonable business hours all books, records and other documents and matters pertaining to operations under a lease or permit, in his custody or control, and to make copies of and extracts therefrom at the Board's expense.

b. The lessee or permittee shall furnish to the Department for its confidential use the following in the manner and form prescribed:

(1) Statement showing the work performed upon the leased or permitted area and the amount, quality, and value of all geothermal resources produced, shipped or sold;

(2) Copies of all physical and factual exploration results, logs and surveys which may be conducted, well test data, and other data resulting from operations under the lease or permit.

7.10 Surrender of Premises.

At or before the expiration of the lease or permit, the lessee or permittee shall restore the lands covered by said lease or permit to their original condition insofar as it is reasonable to do so, except for such roads, excavations, alterations or other improvements which may be designated for retention by the Board or any state agency having jurisdiction over the affected lands. Where determined necessary by the Board or such state agency, cleared sites and roadways shall be replanted with grass, shrubs or trees.

RULE 8
AMENDMENTS

These rules may be amended or repealed at any time by action of the Board, in accordance with Chapter 91 of the Hawaii Revised Statutes; provided, however, that any amendment to these rules changing the rental or royalty due the State of Hawaii or the term of leases shall not adversely affect leases outstanding upon the effective date of the amendment.

The Board of Land and Natural Resources on ______, approved and adopted these rules and regulations.

STATE OF HAWAII

By ____________________________
Chairman and Member
Board of Land and Natural Resources

And By ____________________________
Member
Board of Land and Natural Resources

Approved this _______ day of ____________, 19____.

Governor of Hawaii

Approved as to form:

Deputy Attorney General
Gentlemen:

PROPOSED GEOTHERMAL REGULATIONS

Summary

We request that this letter be considered an extension of the Environmental Center statement submitted on the above subject for the DLNR public hearing on 4 May 1976.

We here address possible questions as to the legislative authority by which the proposed regulations may be extended to cover geothermal exploration and development other than on lands owned by, or subject to mineral rights owned by, the State. We point out that Chapter 178 of Hawaii Revised Statutes requires that notices and records of well drilling must be filed with the DLNR and authorizes DLNR to inspect wells, and that wells are so defined as to include geothermal wells. We also call attention to the possibility that HRS Chapter 178 may provide pertinent authority, although its applicability appears more limited.

Although some extended authority thus exists, we recommend that additional specific authority be sought from the legislature as its next session based on the "commons" aspect of the effects of geothermal development.

We raise some questions as to the adequacy of the proposed DLNR regulations with respect to the effects of failures in the measures undertaken in geothermal well drilling to conserve the energy resource and protect other resources.

Extension of coverage of geothermal regulations

In the Environmental Center statement presented at the DLNR public hearing on 4 May 1976, we called attention to the desirability of extending the scope or the regulations to cover geothermal developments on lands other than those...
owned by the State or subject to State mineral reservations. The stated basis for the proposed regulations is HRS Chapter 182, which deals strictly with the reservation and disposition of government mineral rights and thus provides no authority for the regulation of mineral or geothermal development on lands other than those of the State or subject to State mineral reservations. Our attention has been drawn to the 22 March 1976 letter written to you by Robert Kamins suggesting that necessary authority may be found in HRS Chapter 177. Chapter 178 is also a possible basis.

Chapter 177 relates to ground-water use and Chapter 178 to wells as water wells in 178-1. A well is defined in 178-1 as being any excavation to or penetrating an aquifer or basin whether or not the intended use is for exploration or diversion or recharge of groundwater or for disposal of water or liquid waste. This definition appears to apply to any well and it certainly may be interpreted as including wells intended to develop geothermal energy through the diversion of thermal water, including steam, and in addition, wells intended to dispose of liquid wastes from geothermal wells. Geothermal developments in which the energy is transferred by media other than groundwater, such as water circulated solely within the well itself, could presumably not be regulated under the authority of these chapters.

The rationale we provided for extending the regulation of geothermal development to lands other than those owned by the State or subject to state mineral rights was based on the public interest in geothermal resources extending across property boundaries and in the environmental effects of geothermal development similarly extending across property boundaries. In general the extended effects of geothermal development, either on the geothermal resources themselves or on other environmental resources, will depend significantly on groundwater transfers. Hence the general limitation of the additional authority provided by Chapters 177 and 178 does not seem at all serious. We have reviewed both these chapters to see what authority they provide that could usefully be applied to geothermal development.

Applicability of HRS Chapter 177

The principal authority in HRS Chapter 177 is that in 177-3 which relates regulation of groundwater resources in "designated areas." By Section 177-5 (5), designation is to be based on the finding that one or more of the following conditions exist and will endanger the supply or condition of the water in the area:

(A) Water use exceeds recharge
(B) Water levels are declining or have declined excessively
(C) Chloride content increases to so as to reduce value of water
(D) Excessive waste is occurring
(E) Development is proposed that would lead to any of the above
It seems to us that condition (A) would lead to the termination of geothermal development, that conditions (B) and (D) are unlikely to result from affect geothermal development. However, condition C, the increase in chloride content of groundwater, may result from either the surface discharge or underground injection of brines produced by geothermal wells. Hence the actual increase of chloride content (condition C) or even the threat of the increase of chloride content (condition E) may be the appropriate basis for "designation" of a groundwater area and the regulation of geothermal developments within it.

177-5 (4) authorizes the requirement of reports on wells that need not be in designated areas but the reports are supposed to provide information that is considered necessary to further the purposes of Chapter 177, and hence it seems unlikely that reports on geothermal wells could be required by this section except as deleterious increases in chloride content may occur or be likely as above indicated.

Applicability of HRS Chapter 178

HRS Chapter 178 is not so limited in its application. 178-4 allows DLNR to inspect wells. 178-5 requires that notice must be given to the DLNR of the drilling of any well, and 178-6 requires that records of well drilling be filed with DLNR. It appears that the geothermal regulations could extend these requirements to any geothermal well that will involve transfer of energy by groundwater (or ground steam).

Before the authority of Chapter 178 is invoked, however, it should be recognized that 178-8 permits a well owner to transfer responsibilities for the well to the county. The purpose of this provision is to allow the county to recase or seal the well to prevent groundwater waste or contamination if the costs of the remedy exceed the value of the well to the owner. If applied to geothermal wells, this provision might saddle the counties with responsibility to recase or seal a geothermal well that proved unsatisfactory but was resulting in geothermal energy waste.

Extension by present and additional authority

Considering the potential importance of extending the geothermal regulations to cover developments on lands in which the state does not own the mineral rights, it seems desirable, in spite of risk presented by 178-8, to extend the regulations to require the notice and record of drilling and inspection rights provided in 178-4, 5, and 6 to geothermal wells on such lands pending passage by the legislature of more comprehensive statutory authority.

We urge that the DLNR prepare for the consideration of the legislature at its next session a bill to provide the extension of statutory authority that would provide a more satisfactory base for the regulation by DLNR of the "commons" aspect of the effects of geothermal development.
May 20, 1976

ON BEHALF OF STANDARD OIL COMPANY OF CALIFORNIA AND
ON BEHALF OF CHEVRON OIL BEFORE THE
DEPARTMENT OF LAND AND NATURAL RESOURCES
RELATING TO THE CONSIDERATION OF ADOPTING
GEOTHERMAL RULES AND REGULATIONS

These regulations are proposed under the authority of section 182-14 of the Hawaii Revised Statutes as amended by Act 241 of the Session Laws of Hawaii, 1974. The 1974 amendment set forth its purpose:

The Legislature of the State of Hawaii finds and declares that the geothermal resources of the State provide an energy potential which may be utilized to supply power economically with minimal adverse environmental effects. It is the intent of the Legislature to establish in law the definition and ownership of the geothermal resources, to encourage their development, and to provide for their administration and management in the public interest.

The amendment made three changes to chapter 182. It included "geothermal resources" in the definition of "minerals." Secondly, it defined "geothermal resources." Finally, it added a definition of "mining lease." The amendment and the proposed regulations raise certain legal questions.
The first question is whether the amendment violates the requirements of Article III, section 15 of the Hawaii Constitution. Section 15 states:

No law shall be passed except by bill. Each law shall embrace but one subject, which shall be expressed in its title. The enacting clause of each law shall be, "Be it enacted by the legislature of the State of Hawaii."

The title of Act 241 is: A Bill for an Act Relating to Reservation and Disposition of Government Mineral Rights. The subject of the amendment is "geothermal resources." "Geothermal resources" are not mentioned in the title. The question, then, is whether "geothermal resources" is included within the meaning of "minerals," which is referred to in the title of the amendment as well as in the title of chapter 182.

"Minerals" is defined by section 182-1(1) (unamended):

"Minerals" means any of all of the oil, gas, coal, phosphate, sodium, sulphur, iron, titanium, gold, silver, bauxite, bauxitic clay, diaspore, boehmite, laterite, gibbsite, alumina, all ores of aluminum and, without limitation thereon, all other mineral substances and ore deposits whether solid, gaseous, or liquid, including all geothermal sources in, on, or under any land, fast or submerged; but does not include sand, rock, gravel, and other materials suitable for use and used in road construction.

"Geothermal resources" is defined in Act 241:

"Geothermal resources" shall mean the natural heat of the earth, the energy, in whatever form, below the surface of the earth present in, resulting from,
Rule 5.2. The comments at Rule 2.6 apply to Rule 5.2.

Rule 6.1(a). The duty to compensate the occupier for damages caused by exploration should be based on wrongful conduct of the mining lessee. The mining lessee should not be obligated to pay for damages caused but which were not the mining lessee's fault.

Rule 6.3(a). It should be expressly provided that grazing and argicultural lessees shall not interfere with the operations of the mining lessee.

Rule 7.1(d) authorizes the Chairman to "shut down" any operation for the reasons listed. "Shut down" is a drastic remedy. There is no express authority for it in the statute. The Chairman does, on the other hand, have the power under section 182-10 to revoke a lease breached by the lessee after notice and an opportunity to correct the default. Rule 7.1(d) should be revised accordingly.

Rule 7.4(d). The comments at Rule 2.6 apply to Rule 7.4(d).

Rule 7.5(b) provides that the mining lessee shall drill such wells as are necessary to avoid loss to the Board "by reason of geothermal production on other properties." The Rule goes on to provide for compensation to the Board. Further, the Rule requires the lessee to produce such other wells as are prudent under good operating practices. These Rules appear to impose substantial duties on the mining lessee. But what they precisely require is unclear. In accordance with the principles set out in our comments on Rule 2.6, Rule 7.5(b) should be revised to articulate with reasonable clarity the specific duties of the mining lessee and the criteria and procedure by which it will be judged that those duties were violated.

Rule 7.5(c) and 7.5(d). The comments on Rule 7.5(b) apply as well to Rules 7.5(c) and 7.5(d).
of the explorer so much at the whim of the department as to make the risk of starting a project in Hawaii so unclear as to make it impossible for an explorer to conclude that starting a project in Hawaii would be prudent. The same is true of Rules 6.1(b) and 7.3. The royalty provision in 3.14(b)(2) defies computation with any certainty, and the override provisions of section 3.15 are impossibly confusing. The latter appear to be based on sources not appropriate to Hawaii. Moreover, the rules appear to be geared to hard-rock mining. Geothermal exploration and mining would seem to be better patterned after oil and gas exploration.

Chevron intends to submit more detailed comments on these questions of feasibility. Further, it would very much appreciate discussing these points in conference with the department and/or at any further public hearing.

Very truly yours,

CASE, KAY, CLAUSE & LYNCH

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These comments are submitted on behalf of Standard Oil Company of California and Chevron Oil.
For the Better Protection of Wildlife in Hawaii

HAWAII AUDUBON SOCIETY

May 6, 1976

Mr. Daniel Lum
Hearings Master
Board of Land and Natural Resources
State of Hawaii


The Hawaii Audubon Society offers the following comments and recommendations on the draft regulation governing geothermal exploration, mining and leasing:

It is timely for the State to establish regulations for orderly exploration of geothermal resources and protection of the public interest in the leasing and mining of public resources.

In effect, all State lands would be considered available for geothermal mining leases where that resource exists with the exception of lands designated as natural area reserve. An additional exclusion should be given serious consideration. Should all lands within the coastal zone management area be unavailable for mining leases? Are there particularly sensitive shoreline areas that should be excluded permanently from exploration and mining?

Under Rule 4 concerning the lease application (page 14), the lessee is required to submit a description of the mining proposal, including "protection of ground water and other natural resources, and the environment." In effect, the lessee is allowed to determine how he will protect the environment. This is wholly inadequate.

The regulation should spell out specific and detailed environmental standards for all drilling and mining operations on both public and private lands.

The General Terms under Rule 7 on Exploration and Mining Operations (pp. 15-23) are too vague and susceptible to varying interpretation as far as environmental safeguards are concerned.

The regulation should establish specific controls to minimize environmental pollution and degradation in these areas:

- Design construction and landscaping
- Waste water disposal
- Noise
- Drilling dust
- Generator siting and construction
- Noxious gases
- Steam jets

It would be valuable to examine the California model regulation governing geothermal fuel production in the Geysers area of northern California.
My name is Clarence Garcia, Director of Research and Development, County of Hawaii.

The County of Hawaii is in general agreement with the geothermal rules and regulations as proposed. We do have the following comments:

Adequate consideration of the counties have been incorporated in the application procedures. Provisions have also been made for restoration of land areas should mining or exploration operations cease.

With respect to Rule 4.3, e. relative to the requirement on environmental assessment for mining leases, we believe this provision should conform to Chapter 343, Hawaii Revised Statutes. We also request that similar provisions be made for exploration permits.

In those sections relating to review procedures on applications for exploration permits and leases, the State Historic Preservation Office should be included as a review agency.

Rule 7.6, e, relates to road building, construction and movement of heavy equipment in support of or relating to specific geothermal exploration or development activities.
Although "mining" work is exempted from the provisions of the County Grading Ordinance No. 168, for work regulated by other County ordinances or other governmental agencies, we suggest that the following be added after "State": "in accordance to the provisions of regulations of the County Grading Ordinance."

Rule 2.11, cancellation of permits should be in writing with a copy forwarded to the County of Hawaii.

Rule 3.5, with the 2/3 vote of the Board be based on the number of members present at the meeting or on the number of members to which the Board is entitled?

Submitted by: Kalama Solomon, Hawaiian Studies Instructor, Hawaii Community College.

Energy is more than another scarce resource; it is one of the world's basic commodities and essential to our modern life.

Energy has been the cause of many economic disputes, which has been recently demonstrated by the Arab countries who have used oil resources as a political weapon to insure and support their sovereignty.

New energy resources are necessary which are renewable, inexhaustible and potentially low polluting. "Geo-thermal" energy fits this description and Hawaii is the most logical location for its research and development.

However, the question of "ownership" arises, who actually owns the right to geo-thermal energy? the State of Hawaii or the native Hawaiian Nation. This issue has been totally ignored by this document, submitted by this organization.
The rights regarding to, ownership, definitely belong to the sovereign nation of Hawaii. It is premature to anticipate fully what impact geo-thermal energy will have on the Hawaiian economy, but some patterns are beginning to emerge. The foremost being the most disturbing, ownership.

There are a number of indigenous renewable natural energy resources in Hawaii, Solar, Wind, Ocean, tides, waves and currents all of these, belong to the people of Hawaii. However, geo-thermal energy is "unique", in that it must be mined and like coal and other energy is "unique", in that it must be mined and like coal and other energy producing materials it will then be converted into usable energy.

Refering, to other Native Peoples throughout America, Indians and Eskimos, have fought for their due share of mineral rights so are we as Hawaiians, going to contest the States legal ownership of geo-thermal energy.

As other Native Americans have been given due compensation for minerals mined and anything taken from the ground belonging to them, we as Native Hawaiians deserve nothing less.

Granted, in this document, pages have been devoted to land leases, permits, rentals and royalties. However, this seems absurd when, these kinds of issues are still being questioned and bills presented to Congress questioning credibility.
of who owns many of these said properties, the Native Hawaiian Nation or the State Government.

Respectfully Submitted,

Malana Solomon
Public Hearing
Conducted by the Department of Land and Natural Resources,
State of Hawaii,
on proposed regulation of Geothermal Energy.

Hilo, Hawaii
May 6, 1976

Mr. Chairman, my name is Stephen Kēne-a-I Morse. I am a part-Hawaiian
resident of the Puna district and am here to speak in behalf of myself
and as a board member of the Hawaiian Coalition of Native Claims.

As descendants of the original inhabitants of the Hawaiian Islands, the native
Hawaiian people have traditional lands and inviolable rights which must be
recognized and insured in the planning and use of all lands and resources
that lie within, above and below the boundaries of the Hawaiian archipelago.
One of these inviolable rights is traditional access to and use of any and
all natural resources on, above, and below the surface of these islands.

Therefore, Mr. Chairman, before any rules are established to regulate the
use of potential geothermal energy sources and other natural resources
of the Hawaiian Islands, it is the responsibility of governmental agencies
to properly recognize the sovereign rights of native Hawaiians to these
resources.

May I emphasize that the sovereignty of the native Hawaiian people has
never been extinguished. In establishing rules to regulate geothermal
energy, I suggest you consult with representatives of the native Hawaiians before proceeding.

Stephen Kane-Ai Morse
P.O. Box 1231
Pahoa, HI 96778
To Dept. of Land and Natural Resources

There is an urgent need for more precise and complete guidelines for establishing and operating geothermal generation of electricity units, both in the Puna plant and any subsequent plant built in our state. These safeguards are needed to protect both the general environment and the people living in it or working on the geothermal plant.

These regulations should include the following:

1. Fully adequate control over the disposal of hot or chemically charged water brought up by the geothermal unit, especially considering our porous lava surface soil and many lava tubes.
2. Proper disposal of mud similarly brought to the surface by the operation of the unit.
3. Sufficient muffling of sound produced by the operation of the unit to limit the sound to a specified number of decibels.
4. Adequate control and disposal of noxious gases such as hydrogen sulfide, sulfur dioxide, nitrous oxide, etc., which may come up with steam and otherwise be injurious to plants, animals, and people in or near the unit.
5. Adequate landscaping of the grounds around the unit to keep it from becoming a visual blight on the landscape.

Of course there must be other safeguards for the health and safety of employees, and there are probably other important things which should be required to protect people and the environment. It is much simpler and less expensive to do these things now than to have to wait till damage is done, some of it irreversible, to the countryside and people in it.

Please give this serious and thoughtful attention and give us adequate safeguards before damage is done.

Respectfully submitted,

Helen S. Baldwin

[Signature]
My name is Beverly M. Hookano.

The volcanoes of Hawaii are the true parents of our land, without them there would be no Hawaii and no Hawaiians. We native Hawaiians, with deep conviction have been, and are continuing to fight for our birthright the many acres reserved for us in the great land division which has been wrongfully held or dispersed by the State. The geothermal energy created by the volcanoes is an integral part of the land, and an integral part of our birthright. We have both a legal and moral claim to share in the benefits and profits of this geothermal development.
Submitted to the Dept. of Land and Natural Resources
May 6, 1976  State Building, Hilo, Hawaii 96720
Subject: Regulation of Geothermal Exploration, Mining and Leasing of State and Reserved land in Hawaii

My name is Heidi Meeker and I live at 605 W. Lanikaula St. in Hilo. I would like to comment on your list of regulations for Geothermal Exploration, Mining and Leasing.

In 1959, when I was 5 years old, if you had asked me what changes statehood brought to our state, I would have told you that now Hawaii was getting a new type of gasoline, Texaco gas.

Fifteen years after statehood, in the middle of this island's gasoline panic, I realized for the first time we didn't get Texaco, Texaco got us.

It seems very ironic that this young state is now drawing up regulations so that companies like Texaco can come in and capture the energy that created these islands.

The procedures do not make it clear how the State will go about reserving the geothermal resources of privately owned or leased land. I am particularly puzzled by one of the procedures for leasing of Reserved Lands, Rule 5.2 B, that reads, if the occupier or his assignee should fail to apply for a mining lease within 6 months from the date of notice from the Board of its finding that it is in the public interest that the geothermal resources in the reserved lands be mined, a mining lease shall be granted by public auction and the bidders shall bid on an amount to be paid to the state.

I realize these rules weren't written for laymen to understand but perhaps you could include a definition of OVERRIDING ROYALTY INTERESTS in your opening glossary. I have no idea as to what rule 3-15 is talking about.
Rule 4.7 concerned with giving public notice of lease applications. If your department will go to the trouble of placing a notice in the newspaper once a week for three weeks to allow the public to review the application and submit written comments, why can't there be some provision to hold public hearings if there seems to be a need for one.

Throughout your proposed regulations the Dept. has demonstrated its concern about the effects the development of geothermal power will have on the environment. The fish, the wildlife and the forest will all be protected.

We won't have to look at any unsightliness since all operating sites will be disguised by landscaped, state approved fencing.

I think with all your wildlife concern you have overlooked the social and economic effects of geothermal development on the people who live here. I don't think we should be appeased by lower utility bills or by the State making 15% off the development. Everyone in the state should know the implications of a cheap energy source.

Finally I think that energy should be used to do good in this state and I can see no better way than to give the geothermal rights or a portion of the royalties to a non-profit corporation of native Hawaiian who have and will always be Hawaii's greatest natural resource.
In summary, Alternate Energy sources are a must for Hawaii’s economy in the near future. We can no longer operate a large urban economy on the burning of fuels and petroleums.

I am in support of the Geo-Thermal plans, which have been presented by the court of Land and Natural Resources. However, are we not overlooking one very important legal question; Who Owns the rights to geo-thermal energy? The “State” or the Native Hawaiian Nation. I feel now the Native Hawaiian Nation has a valid claim in regards to this issue.

We have a bill in Congress Entitled: "HAWAII CLAIMS SETTLEMENT ACT", which questions the validity of many land titles of said "State" properties, which will be used for the purpose of Geo-thermal mining are still in question.

Therefore, before the board presents any further recommendations, it would seem to be appropriate to investigate the legal ownership of Geo-thermal Energy.

William Whitmarsh
Testimony of Andy Levin at a Public Hearing to Consider Adoption of Geothermal Rules and Regulations
(May 6, 1976)

At a time when it is critical to our nation that we develop alternative sources of energy; in a State where economic development may be stymied by the high cost of energy; it is certainly appropriate that we are moving toward development of our geothermal mineral resources. However, I believe we will be making a grievous and irreparable mistake if this valuable asset is allowed to be developed by private interests for the profit of a few rather than by the State on behalf of all our residents.

Adoption of the Geothermal Rules and Regulations before us will establish a policy under which the geothermal resource will be developed by private parties. Then the owners of the resource, the people of this State, as consumers will be forced to buy back the resource, in the form of electricity and power, at a price which includes a profit for the private investors. I certainly recognize that if private industry makes the investment and takes the risk in developing this resource, that it is surely entitled to a profit if and when successful. But wouldn't it be better to establish a true public utility; to move along the path that is likely to produce the least expensive power for all our people and all our industry?

I say a true public utility, rather than what we have now. Our present public utilities give us the worst of two possible worlds. Consumers are forced to pay a price for services which reflects a profit for the investors of the company.
along the lines of the Department of Water Supply, to handle geothermal energy. Rates charged by the County Water Department, compared to rates in the private water system at Hawaiian Beaches, give some indication of the wisdom of the government operated approach.

Rule 1.7, Geothermal Policy, is perhaps unintentionally revealing. These rules, it says, are meant to develop the geothermal resources subject to protection of the environment and natural resource. That's fine, but what about protection of the consumer? Shouldn't we be trying to protect ourselves? Under the proposed rules, I would wager that one of the first applicants for a permit will be a public utility. If it gets the permit, will the capital investment in research equipment in itself force higher utility rates? I would think so. The consumer is squarely behind the 8-ball, right from the start.

We should be learning from our experience with bagasse-generated electricity, which has reduced our dependence on oil, perhaps, but not our electric rates.

Many conditions are imposed in the proposed rules, protections intended to minimize the loss of control the government will suffer under the lease system. But these conditions cannot cover everything; the way to really the best interests of the residents of Hawaii is to admit that conditions in leases are not an adequate substitute for direct government control of the resource itself.

And this would be keeping for the people simply what is theirs. Direct solar energy from the sun, ocean thermal energy, geothermal energy; all of these belong to the people
Our names are Samuel and Ruth Hookano.

The islands are all of volcanic origin. The volcanoes energy and products are the fundamental basis and an integral part of the land. We as native Hawaiians believe and claim that we have the basic right to share in the profits derived from the development of geothermal energy on our lands.

In Hawaiian History, Volcanoes played an important role in the Hawaiian life. This is illustrated by the folklore that was developed by the Hawaiians and handed down through generations, legends depicting the life of Pele, the Volcano Goddess. Hawaiians were aware of the energies that were produced by Volcanic activity which has been expressed through their Chants and Dances.

Lacking the need of harnessing this energy, did preclude their knowledge of knowing that Volcanoes Energy is both good or bad. Good in that it created these islands. Bad in that it could destroy what it had created.

We as Hawaiian people have a genuine affinity with the land and although we did not have land ownership in the western sense of the meaning of ownership Hawaiians, respected and worked the land, land belonged to all was protected by the Gods with, the coming of foreigners things changed drastically.
annexation to America severed, the majority of Hawaiian Rule in Hawaii forever.

Now Hawaiians are beginning to understand what took place and no longer "turning the other cheek." For these reasons we believe ethnically Geo-Thermal Energy rights belong to the Hawaiian Nation not the "State of Hawaii."

Respectfully Submitted,
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| Jane Sakai |  |
| Doris Hamada |  |
| Lorraine Nanbu |  |
| Jean Siarot |  |
| Elsie Yonamine |  |

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I have signed.
Mr. Robert T. Chuck  
Manager-Chief Engineer  
Water & Land Development Division  
Department of Land & Natural Resources  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Bob:

As agreed to at our meeting on July 28, we have reviewed the draft of the regulations of the Board of Land and Natural Resources relative to regulating geothermal exploration, mining and leasing of State and reserved lands in Hawaii and have the following comments to make. Our comments are arranged in sequence rather than in their order of significance.

Rule 1.4 This rule is duplicated by Rule 8 and could be deleted.

Rule 1.6 The definitions of "State lands" and "reserved lands" in this rule are not the same as in the statute. See HRS Section 182-1(3) and (4) as amended by S.L. 1974 Act 241. These definitions should be identical with those in the statute.

Rule 2.1 Under the terms of this rule an exploration permit must be obtained for any land. Since leases under Rule 3.1 can be granted only with respect to State lands and reserved lands we wonder whether this is intended.

Rule 2.4(a) We do not believe a lessee could get insurance for the injury to the "environment" and therefore recommend that this should be deleted from the rule. Also, the table for the insurance coverage is not clear in this rule, and the rule should expressly provide that insurance coverage should be for the term of the permit.

Rule 2.6(a) and (b) There is a reference in this rule to the "surface rights holder," which is not a defined term. Also, in the second sentence of Rule 2.6(b) it is an error to refer to the surface rights holders and occupants as having "statutory jurisdictions."
Rule 2.7 Under this rule an exploration permit can apparently be renewed only once for a 2-year term after the expiration of the original 2-year term. Since there is no prohibition for reapplying for an exploration permit, there would seem to be no reason for not permitting successive 2-year terms rather than allowing only one renewal for a 2-year term.

Rule 3.1 Instead of describing the lands, we believe the reference in this rule should be to State and reserved lands since these are defined terms.

Rule 3.3 In this rule provision is made that the Board of Land and Natural Resources may make a determination that a person is "disqualified" from leasing geothermal resources. However, there is no indication as to what the grounds would be to make such a determination. The grounds for disqualification should be set forth in the rule.

Rule 3.6 This rule places a limit on the maximum size of a lease, but it is not clear how the minimum size is determined.

Rule 3.7(a) This rule provides that an assignee must have the "same qualifications as any bidder," but there are no qualifications for a bidder if the bidder is a "person" as defined in Rule 1.6.

Rule 3.7(h) In this rule provision is made for the "qualifications" of the parties taking an interest in the lease by way of assignment. Again there do not seem to be any "qualifications" except that the assignee must be a "person" within the meaning of Rule 1.6.

Rule 3.8 Under this rule a lease may be revoked if there is "uneconomic operation." However, there are no grounds specified in the rule for determining what constitutes "uneconomic operation."

Rule 3.9 This rule does not appear to be necessary since there is an express statutory provision concerning the surrender of mining leases in HRS Section 182-13.

Rule 3.12(c) This rule provides for the continuation of the lease beyond its primary term of 10 years if the geothermal resources are being produced and utilized in paying quantities. However, there do not appear to be any grounds specified for what constitutes "in paying quantities."

Rule 3.14(a) As we discussed, the general public would benefit by the use of geothermal resources in the production of power
by a public utility. Accordingly, an exception for the royalty payment should be made for public utilities within the meaning of HRS Section 269-1 so as to provide that there would be no royalty payable if the use of the geothermal resource reduces the rate per unit of energy paid by ratepayers generally. This could be accomplished by adding a new sub-paragraph (3) to this rule, to read as follows:

(3) No royalty need be paid if the lessee is a public utility within the meaning of Section 269-1 of Chapter 269, Hawaii Revised Statutes, and if the geothermal resources are utilized by the public utility solely in its public utility operations and result in a reduction of the rate per unit of energy paid by ratepayers generally.

Rule 3.15(a) This rule relating to overriding royalty interests provides that the interest of an assignee in geothermal leases may "not exceed the acreage limitations provided in these rules." There do not appear to be any acreage limitations provided for in the rules. Rule 3.6 places a limit on the size of a leasable tract, but Rule 3.10 provides that any person may have an unlimited number of leases.

Rule 3.15(b) This rule limits overriding royalties (an interest carved out of the lessee's share as distinguished from the owner's [i.e., State's] share) to 5%. But it is not clear as to what the 5% applies.

Rule 3.15(d) This rule provides for the suspension of overriding royalties by the Chairman of the Board of Land and Natural Resources when there may be "an undue economic burden upon the reasonable operations of [a] lease." This would appear to provide almost unlimited power to suspend overriding royalties.

Rule 3.17 This rule provides that "products liability insurance" must also be carried. We question whether this type of insurance is necessary.

Rule 3.19 This rule provides that the State makes no warranties of title with respect to the geothermal resources. It further provides that the lessee shall not be entitled to or claim any refund of rentals or royalties paid to the State in the event the State does not own title to the geothermal resources. This seems to us contrary to the last sentence of HRS Section 182-13, which reads as follows:

A mining lease may also be surrendered if as a result of a final determination by a court of competent
jurisdiction, the lessee is found to have acquired no
rights in or to the minerals on reserved lands, nor
the right to exploit the same, pursuant to the lease,
and, in such event, the lessee shall be reimbursed for
rentals paid to the State pursuant to the lease.

Rule 4.1 It appears that the reference in this rule to
Rule 3.2 is in error since Rule 4 in its entirety relates
to procedures for leasing on State lands, whereas Rule 3.2
covers both State and reserved lands.

Rule 4.10 The rental provided for in this rule is the same
as that provided for in rule 3.14(b) and thus seems to be
unnecessary.

Rule 6.3(f) This rule relates to reclamation, and we can
certainly understand its purpose. However, it could place
a very expensive obligation upon a lessee.

Rule 7.1(d) This rule gives the Chairman of the Board of
Land and Natural Resources almost unlimited power to shut
down operations. It is our judgment that it would be
preferable to have this power expressed by the Board of
Land and Natural Resources and only after an opportunity
for public hearing.

Rule 7.4(c) This rule provides for samples and tests and
surveys without any limit. This could be quite expensive.

Rule 7.4(d) This rule places a severe restriction on the
abandonment of wells. Abandonment requires prior approval
of the Chairman of the Board of Land and Natural Resources.
This appears to be inconsistent with the first sentence of
HRS Section 182-13, which provides for the surrender of
mining leases with the consent of the Board of Land and
Natural Resources.

Rule 7.5(b) and (c) These could be extremely onerous
provisions at a cost impossible to estimate.

Rule 7.6 This rule places a number of onerous obligations
on the lessee and concludes with a provision that requires
the lessee to "conduct its operations in a manner which
will not interfere with the right of the public to use of
public lands and waters." If the lease covers State land,
this would be "public lands" and the geothermal operations
would obviously have to interfere with the right of the
public to use such public lands.
Rule 7.8 Literally this rule requires exploratory development expenses even after the resource is fully developed. Surely this is not intended.

We appreciate the opportunity to comment on these proposed regulations, and, should you have any questions regarding the intent of our comments, we will be most happy to meet with you and discuss them further.

Very truly yours,

[Signature]

cc: Mr. E. C. Higgins
Division of Water and Land  
State of Hawaii  
P. O. Box 373  
Honolulu, Hawaii  96809  

Attention: Mr. Robert T. Chuck  
Manager  

Re: Proposed Regulation of 
Geothermal Exploration, 
Mining and Leasing on 
State and Reserved Lands 
in Hawaii  

Gentlemen:  

Our comments on the proposed geothermal regulations are submitted herewith. We recognize this is a late response compared to your schedule of preparing the regulations for consideration by the Board of Land and Natural Resources. However, we hope our comments can be of some assistance in the final preparation of these important regulations.

Rule 3.9 - Surrender of Mining Leases  

The proposed payment of two years rent to allow surrender of a lease contradicts the convention of making rental payments to extend and maintain a lease. We think a Lessee's right to voluntarily surrender leasehold should not be penalized by further rental payment.

Rule 3.12d. - Duration of Geothermal Mining Leases  

A Lessee should be relieved of rental payments if production is shut-in by Governmental or Court order.

Rule 3.13a. - Rentals  

The last sentence of this paragraph, concerning "failure to pay exact rental" should be removed because it is in conflict with the benefits allowed under Rule 3.8, where a Lessee, not paying any rental when due, is given 6 months to remedy his default.
Rule 3.14a(1) - Royalties

It is recommended that the words "or reasonably susceptible to sale or utilization by the Lessee" be removed from this provision. Finding agreement on what is "reasonably susceptible" and the quantities and values related to that category is likely to be a very contentious proceeding.

Rule 3.14c. - Royalties

The language of this paragraph is not complete. We think it is intended that notice be given to the Chairman within 15 days after discovery and that another notice be given 15 days before commercial use or removal commences.

Rule 4 - Procedures For Leasing On State Lands

We believe that all of the provisions from Rule 4.1 through 4.8 are appropriate to an application for a geothermal mining lease on reserved lands only. These provisions, as applied to the applicant for a lease on State lands, simply reduce to a serious penalty for the applicant party taking the initiative. These provisions, as written, ask nothing of the competitive parties that could appear in the public auction (Rule 4.10) and in fact favors such parties with a free education as provided by Rule 4.7.

Given that the State, by law, will provide a geothermal mining lease on State lands only through the public auction procedure, we believe the Board cannot fairly ask for anything more than nominations of State lands for public auction from "Persons" qualified to hold such leases. Please examine the procedure used by the Department of the Interior with respect to competitive leasing of oil and gas rights on the Outer Continental Shelf.

Most onerous to a qualified geothermal company would be the early public disclosure under Rule 4.7 of the data submitted under Rule 4.3b. and c. We strongly recommend that this data in every kind of application be given a two-year initial confidential status in which it is used only by the Board and its technical agency qualified to pass judgement on such data.

We urge that Rule 4 be reduced to a nominating procedure supplemented by the procedures now specified under part 4.9 and 4.10. We urge that all of the procedures under parts 4.1 through 4.8 be placed in an enlarged Rule 5 where they will more properly serve the public interest when the State grants a geothermal mining lease without public auction.
We appreciate this opportunity to comment on these proposed geothermal rules. Please feel free to call me collect at 415/981-5700, extension 170 if you need clarification on any of these comments. Please add our firm to your mailing list of interested parties to be noticed in your further procedures or public hearings on this matter.

Very truly yours,

W. L. D'Olier
Vice President
Geothermal Operations

WLD/tti

cc: Mr. Dan Lum
Mr. Daniel Lum  
Hydrologist-Geologist  
State of Hawaii  
Department of Land and  
Natural Resources  
Division of Water and  
Land Development  
P.O. Box 373  
Honolulu, Hawaii 96809

Dear Mr. Lum:

I respectfully submit for your consideration the following comments regarding the State of Hawaii's draft geothermal regulations.

The regulations, as you advised in our meeting last week, evolved from existing regulations commonly referred to as the bauxite mining regulations. Although geothermal exploration and development activity could be considered a mining activity by definition, it is more akin to petroleum practices and procedures than "hard rock" mining such as for bauxite; therefore, I believe it may prove difficult in some cases to adapt such mining regulations so as to be compatible for geothermal purposes.

Some of the terms and conditions of the draft geothermal regulations are foreign to the geothermal industry, and the regulations, if adopted in the present form, could discourage experienced geothermal operators from participating in the timely and most economic development of geothermal resources in the state. This, I am sure, is not the intent of the proposed regulations.

Although I understand you have not as yet compiled a draft lease form I would like to first discuss the geothermal lease and touch on those provisions that the industry feels are very necessary for geothermal operations.
By the very nature of the industry, the geothermal lease is patterned quite closely after the typical oil and gas lease that has been in universal use by the petroleum industry for over fifty years. It has a granting clause with the appropriate definitions, primary term, rental clause, royalty clause, pooling clause, quitclaim provision, etc., but certain additional lease provisions are included which are critical to the geothermal industry.

The granting clause should include, in addition to exclusive geothermal rights and the usual grants contained in an oil and gas lease, the right to store, utilize, produce, convert, and otherwise treat the resource and extract any extractable minerals. It must provide the right to inject or reinject effluents from wells located on the leased land or on lands in the vicinity thereof, and of course the right to construct power plants and related facilities such as pipelines, utility lines, power and transmission lines. The lessee may terminate the lease at any time, and in the event the lease is terminated for any reason, the rights granted with respect to power plants, roads, ponds, rights of way and/or easements that are being used at the time of termination should remain in effect so long as they are being used by the lessee, its successors and assigns.

It is necessary that the lease contain a shut-in well provision extending from the point of discovery to the sale of the geothermal resource.

A problem peculiar to the geothermal industry is the long lag time between discovery and revenue. After an initial discovery has been completed, there is a considerable amount of time that lapses while the lessee completes confirmation drilling and testing to assure that there is an adequate reservoir of energy prior to the opening of negotiations with a utility for the sale of the resource. Since a geothermal power plant must be located in the field and is designed specifically for the resource which has been discovered, it is absolutely essential that the utility be assured of a continuing power supply for sufficient years so it may have adequate time to amortize its investment. The utility may even require the lessee to indemnify it against loss in the event there is not sufficient power to operate the plant; therefore, the confirmation drilling and testing may be more time consuming in establishing the size of the reservoir than is normally required in the petroleum or mining industries. Consequently, this program may require three or more years before contract negotiations may be opened. Such negotiations, with one or more utilities, could span an additional year or more. Following consumation of the contract the lessee will encounter yet another delay while the utility is designing the power plant, which is followed by two years as a minimum for the construction of the plant itself.
The above is recited to demonstrate the need for adequate time, even beyond the primary term of the lease, to place a well on commercial production after discovery.

One of the more important clauses that the lease must contain is the commingling provision. This permits the lessee to gather steam from several leases and transport the energy in a common line to a power house.

Commingling is recited in your draft regulations but not mentioned is the pooling provision.

A pooling clause permits the lessee to pool all or part of the leased lands with one or more other adjacent leases into an operating unit. Any well or wells commenced, drilled, drilling and/or producing in any part of the unit area shall for all purposes of the lease agreement be deemed on the leased land. Royalty is paid in proportion that the acreage of the leased land contained within the unit area bears to the total acreage of the unit. The typical pooling clause permits the lessee to create such an operating unit within twenty years from the effective date of the lease; however, the unit area usually cannot exceed 1920 acres plus an acreage tolerance of ten percent.

Operating units have been in universal use by the petroleum industry almost from its very beginning and the benefits derived by the industry also holds true for the geothermal industry. The implementation of a unit area is to prevent waste, conserve natural resources, eliminate the drilling of excess or unnecessary development and injection wells and secure the other benefits obtainable in a plan of operation for the uniform development and production of the geothermal resource.

The basic lease form that will be issued pursuant to the state geothermal regulations should be drafted and complemented into the regulations before the said regulations are approved and adopted. This, of course, will not prohibit the Board as it deems appropriate from adding any additional special stipulations to any proposed lease agreement. I believe it is important, however, that all such special stipulations be decided upon in advance and recited in the public notice of the land area to be put up for competitive bid.

I have previously furnished you various state, Federal and industry geothermal lease forms. Please do not hesitate to let me know if I can be of any assistance in clarifying any of the terms and conditions of these agreements.

My cursory comments on specific portions of the draft regulations are expressed below.
RULE NO. 2: The need for geothermal exploration permits appears unnecessary for the following basic reasons:

a) The exploratory phase can be performed just as well under the terms of a geothermal lease pursuant to Rule Nos. 3 and 4;

b) An operator, who holds a geothermal exploration permit and who has expended considerable time and monies in evaluating and perhaps establishing the existence of a geothermal resource MUST BE ASSURED of being able to proceed from step one (the geothermal exploration permit phase) to step two (the geothermal lease phase with full rights to develop and produce the discovered resource) such assurances being absent from the draft regulations; and

c) The permit phase will only give rise to a longer time lag of inactivity between discovery and point of commercial production caused by the duplication of application procedures, public hearings, approvals, paper work, etc., all of which must be repeated during the lease acquisition phase.

Proposed Rule No. 2, however well-intentioned, is ill-advised, and its adoption will be counter-productive. The rule could encourage the entry of speculators into the permitting phase, but the experienced geothermal developer may be reluctant to risk his capital in the search for the resource if he is not assured of participating in its final development.

3.1 - For the reasons previously discussed above, a basic lease form should be drafted and made a part of the regulations.

3.2 - The paragraph introduces the procedures of leasing state lands that have been designated as "known geothermal resources" lands; however, no provision has been made for the leasing of state lands not designated as such. Perhaps appropriate provisions should be put into the regulations whereby non-designated state lands may be applied for in a manner similar to the acquisition of Federal noncompetitive leases. Part 3210 of the Rules and Regulations to the Geothermal Steam Act of 1970 may be referred to for the method whereby a party can make application for a geothermal lease on Federal land which is not within a KGRA (known geothermal resource area).

3.4 - It is the standard practice today of other government agencies to offer lands for competitive leasing by the sealed bid method. Such a procedure is detailed under Part 3220 of the Rules and Regulations to the Geothermal Steam Act.

The sealed bid procedure, as opposed to the competitive bid basis at public auction, provides a more uniform and consistant method
of conducting a sale. In most cases it also tends to discourage bidding by speculators and provides these agencies conducting the sale more revenue from their leased lands. The per acre annual rentals for all leases are fixed by the regulations; therefore the highest total bonus consideration bid for each lease offered in the sale solely determines the winning bidder.

3.7g. - The consideration between parties of a lease assignment must be considered proprietary information; therefore the reference to same should be omitted from this paragraph.

3.8 - The words or of law in the second line of this paragraph should be replaced by the words or these regulations. I think you will agree the lessee should have to look only to the terms and conditions of the lease, the regulations, or the decisions of the Board in the conduct of its leasehold activities. The words of law carries too broad of a meaning.

3.9 - To penalize a lessee through the forced payment of additional rentals in order to surrender a lease is unheard of in the geothermal industry. Rather, the Board may want to encourage lessees who no longer wish to explore or develop the leased lands to surrender it thereby causing a more rapid turnover of the lands to another, perhaps, more aggressive lessee. The bonus monies received by the state on a new lease should more than compensate for the loss of the said penalty payments. I strongly suggest the references to these payments be omitted from the paragraph.

3.11 - As previously stated above, the terms and conditions of a proposed lease, if different from any of the terms and conditions contained in the approved lease form, should be published in advance of the sale offering the lease.

3.12b. - The phrase to 1,000 feet or deeper in line four of the paragraph should be changed to read below the depth of 1,000 feet or at a lesser depth of productive zone.

The word utilized in line six of the paragraph was probably intended to be unitized.

3.12c. - The paragraph states that a lease may not be continued for more than 55 years after the end of the primary term. It is suggested that the paragraph contain an additional provision whereby if at the end of the aforementioned period geothermal resources are being produced or utilized in commercial quantities, the lessee shall have a preferential right to a renewal of the lease for a second 55 year term in accordance with such terms and conditions as the Board deems appropriate.
3.13 - As previously discussed above, I believe the annual rental should be a fixed amount and the said amount specified in the regulations. The bonus consideration offered for a lease should be the only factor in the determination of the successful bidder in a competitive lease sale.

3.14c. - The paragraph is not clear. I assume its intent is to put the Chairman on notice on or before 15 days following the testing program of the initial discovery well on the lease, and also like notice prior to the commencement of the initial commercial sale of geothermal resources from the leased land.

3.14e. - The word disposal in the second line of the paragraph probably should be changed to the word sale.

3.14f. - It is suggested the paragraph be rewritten as follows:

"Metering equipment shall be maintained and operated by lessee in such a manner as to meet acceptable standards of accuracy consistent with geothermal industry practices. Use of such equipment shall be discontinued at any time upon determination by the Chairman that standards of accuracy or quality are not being maintained and, if found defective, the Chairman will determine the quantity and quality of production from the best evidence available.

3.14h. - The lessee's need to commingle production was previously discussed above and I want to emphasize the point that it would be nearly impossible to operate a geothermal field without this provision; therefore the lease must contain this right subject only to the Board's right to approve the plan by which commingling will be carried out.

It is suggested a pooling clause similar to the one previously discussed above be added to the regulations following paragraph 3.14h.

3.19 - The company can agree to the contents of this paragraph, subject, however, to the following comments.

Needless to say, we have always made it a firm policy in dispensing royalties only after the ownership of the resource has been firmly established by title examination or court decision; however, we do not know at this time who owns the geothermal resource if there has been a severance of the mineral estate from the surface estate. In oil and gas there have been enumerable cases regarding the ownership of oil and gas rights; however, we do not have these precedents to follow in the geothermal industry and as a matter of fact our Federal courts have rendered only one decision in this regard. That case is United States v. Union Oil Company of California in the U. S. District for the Northern District of California.
The basis of this suit was the reservation of coal and other minerals by the United States in the patents granted to the defendant's predecessors in title. The government contended that this reservation made pursuant to the Stock Raising Homestead Act of 1916 vested the geothermal rights in the U.S.A.; however, the court held for the surface owner. The decision is rather lengthy but I believe the court largely based its holding on the fact that it was not the intention of Congress to reserve this resource when the Act was passed. The decision makes reference to the debates, reports and other legislative history pertaining to this bill. Additionally, the court seemed to lean on the theory that the substance is steam and, therefore, a form of water and legally water has never been categorized as a mineral. Of course, science considers water as a mineral in the broad animal, vegetable, mineral concept. This case is now on appeal in the Ninth Circuit Court of Appeals and so it will be sometime before a final judicial determination is made regarding this reservation.

By the mere legislative action of enlarging on the definition of minerals to expressly include geothermal resources AFTER the severance of the mineral estate from the surface estate of any specific parcel of land does not necessarily eliminate the ownership problem discussed above. Final decisions in the above case and perhaps many more similar cases will have to be rendered before the problem can be put to rest.

With the above comments in mind, it is suggested Paragraph 3.19 be expanded to authorize a lessee to place royalties attributable to reserved lands, as are defined in the regulations, into an escrow account with the express condition that the said impounded funds will be awarded to the successful litigant when the final judicial determination is made to the ownership of the royalties.

RULE NOS. 4, 5 & 6 - The leasing procedures, as now written, will slow the leasing process down to a point that will deter any interest in geothermal activity in the state.

First, the information that must be submitted with an application will be time consuming and costly in compiling, unknown or incomplete in most cases and confidential in nature. If a potential lessee gets into a competitive bid situation he should not have to give out competitive information. Such availability of such information will attract speculation and will discourage development of the resource. A lessee is requested to furnish such data (Paragraph 7.2 - Plan of Operations Required), but an applicant should not have to be burdened with submitting such information if he is not assured of eventually gaining the lease.

Second, public hearings seem unnecessary prior to the issuance of a lease or until a development program is actually contemplated for a specific area. The Board, through these proceedings, is giving up much of the authority of the professionals on its staff.
to other agencies and individuals. The lessee, on the other hand, should only have to look to one government authority in conduct of his geothermal activities, in this case the Board of Land and Natural Resources.

Third, in the case of reserved lands, input from an occupier should only come into play if and when the occupier has actually suffered material damage. In my opinion the state enjoys the implied right of surface entry to reserved lands and the use of the surface of the land for the purpose of extracting mineral resources to which it reserved title.

Perhaps the leasing process can best be accomplished in the following abbreviated manner:

a) Nomination for lease is filed by industry or individual to the Board together with an accurate description of the state lands or reserved lands desired;

b) Decision is made by the Board whether or not to lease the nominated lands;

c) If the decision is made to lease the nominated lands, the Board rules whether or not the said lands be designated as known geothermal resources lands;

d) If designated as known geothermal resources lands, the same is advertised for lease, a competitive lease sale is held, and the highest bidder is awarded a lease pursuant to the terms and conditions of these regulations;

e) If not designated as known geothermal resources lands and no other nominations for the same lands were received by the Board during a nominating period, to be specified in these regulations, a lease is awarded to the nominee pursuant to the terms and conditions of these regulations; and

f) If more than one nomination is received for the said lands during the same nominating period, the lands shall be designated as known geothermal resources lands and leased by competitive bid.

7.3 - This paragraph requires the operator to obtain the Chairman's approval before any deviation from the plan of operations can be undertaken. Such approvals should rarely be required because the approved plan of operations shall provide sufficient contingency plans to cover most unforeseen activities in the field. This may not be the case during drilling.

Drilling operations are conducted on a 7 day - 24 hour basis. Charges for standby time for land rigs can run as high as $4,000.00 per day. These facts are merely pointed out to show what could happen if a decision must immediately be made in the field at
2 o'clock on a Sunday morning that is contrary to the plan of operations such as plugging a well for mechanical or other reasons prior to reaching the programmed total depth, and the Chairman, or even his delegated person of authority, may not be found until the following Monday morning.

The regulations should provide for such contingencies and relief for the operator if approvals from the Chairman are solicited but not timely received.

7.4d. - This paragraph also makes mention to the abandonment of wells without the prior approval of the Chairman. A prudent operator should not be required to secure the Chairman's approval to abandon a well if abandonment procedures are fully defined in the approved plan of operations and the Board staff is put on notice before abandonment to witness, if time permits, the plugging of the well.

Also, the second to the last sentence in Paragraph 7.4d. implies that the drilling rig cannot be removed from the well site until the well has been plugged. It is standard industry practice to move the rig off the well site after the well has reached its projected total depth while the well is being tested. Following the testing program, the drilling rig or a smaller, less expensive completion rig is brought in to complete or plug the well. That portion of the paragraph should therefore be clarified to cover such practices.

7.5b. - This paragraph, as now written, will be difficult for the industry to accept. An offset clause that would be acceptable is as follows:

"In the event a well or wells producing geothermal resources in commercial quantities should be brought in on adjacent land and within 660 feet of and draining the leased lands, Lessee agrees to drill such offset wells as a reasonably prudent operator would drill under the same or similar circumstances."

7.6f. - The words except public roads should be inserted in the first line of the paragraph between the words roads and and.

7.6j. - As previously discussed above, the lessee should only have to look specifically to the Chairman or the Board, and not the state or other government agencies, in carrying out the terms and conditions of the lease. Also, the need for such items as danger signs and fences shall be fully detailed in the approved plan of operations and, therefore, need not be mentioned in the regulations.
7.7 - The circumstances recited in this paragraph can be fully covered in any approved contingency plan annexed to the plan of operations and, therefore, need not be mentioned in the regulations.

7.8 - The last paragraph should be eliminated because of the following reasons:

a) The first paragraph adequately instructs the lessee he must perform diligent operations;

b) The contention by the Board on whether or not the lessee has conducted diligent operations is subjective in nature;

c) A lessee, confronted by a directive of the Board that he is to be penalized for noncompliance of this provision, could fabricate unnecessary, extravagant, or wasteful projects for the leased lands for the sole purpose of equalling the minimum expenditures set by the Board; and

d) This provision is inconsistent with accepted industry practices and any prudent operator will be reluctant to enter into such an arrangement.

7.9 - Due to the highly competitive nature of the industry, it should be expressly provided in the regulations that all records and reports submitted by the lessee to the Board be held on a confidential basis during the existence of his lease, and that interpretative, experimental or secret data will not have to be submitted to the Board.

7.10 - It is not practical to assume that a lessee can comply to all of the provisions of this paragraph on or before the expiration date of the lease; therefore the beginning of the paragraph should read Within 90 days from and the words At or before be omitted.

I appreciate your giving me the opportunity to submit the above comments to your draft geothermal regulations, and, needless to say, I hope that you will keep me informed on any future developments on the regulations.

Thank you.

Very truly yours,

Henry T. Snow

HTS/ber