

TITLE 13

DEPARTMENT OF LAND AND NATURAL RESOURCES

SUB-TITLE 7. WATER AND LAND DEVELOPMENT

CHAPTER 183

RULES ON LEASING AND DRILLING OF  
GEOTHERMAL RESOURCES

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Historical Note: Chapter 183 of Title 13, Rules on Leasing and Drilling of Geothermal Resources, is based substantially on Regulation 8, Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii. [Eff. 5/19/78; R JUN 22 1981]

Subchapter 1. General

§13-183-1 Purpose. (a) The purpose of these rules is to provide for:

- (1) The leasing of geothermal resources on state or reserved lands; and
- (2) The regulation of all drilling of geothermal resources in Hawaii.

(b) The rules contained in subchapters 2 through 7 shall regulate the exploration, development, and production of geothermal resources and its by-products on state or reserved lands.

(c) The rules contained in subchapters 8 through 13 shall regulate the drilling of all wells for geothermal resources and its by-products, and shall apply to all lands within the State including privately owned lands. All wells shall be drilled, operated and maintained, or abandoned in accordance with these rules for the purpose of:

- (1) Preventing waste;
- (2) Conserving and providing for the optimum use of geothermal resources;
- (3) Minimizing or preventing degradation of the environment, surface and ground waters, and other natural resources; and
- (4) Preventing injury to life and property.

[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-2 Authority. These rules are promulgated pursuant to the jurisdiction and authority of the board of land and natural resources as provided in chapters 177, 178 and 182, Hawaii Revised Statutes.

[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp. HRS §183-14)

§13-183-3 Definitions. As used herein unless otherwise provided:

"Board" means the board of land and natural resources.

"Chairperson" means the chairperson of the board of land and natural resources or the designated representative.

"Commercial quantities" means quantities sufficient to provide a return after current production and operating costs have been met.

"Department" means the department of land and natural resources.

"Force Majeure" means any fire, explosion, flood, volcanic activity, seismic or tidal wave, mobilization, war (whether declared or undeclared), act of any belligerent in any such war, riot, rebellion, the elements, power shortages, strike, lockout, difference of workers, any cause which prevents the economic mining of the geothermal resources, restraints by courts, or other governmental authorities, failure or unreasonable delay by governmental authorities in issuance of permits or approvals or any other cause beyond the reasonable control of the parties affected, whether or not of the nature or character hereinabove specifically enumerated.

"Geothermal by-product" means any mineral or minerals (exclusive of oil, hydrocarbon gas and helium) which are found in solution or developed in association with geothermal resources and demineralized or desalted effluent water.

"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 the 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.

"Mining lease" means a lease of the right to conduct geothermal operations on State lands or reserved lands to discover, develop, produce, and utilize geothermal resources therein. Unless the context indicates otherwise, "lease" or "geothermal lease" means "mining lease".

"Mining lessee" means any person as defined herein to whom a mining lease has been granted including a transferee, assignee, sublessee or successor in interest. It also means any agent of

the mining lessee or an operator holding authority by or through the mining lessee. Unless the context indicates otherwise "Lessee" means "mining lessee".

"Mining operations" means the process of excavation, extraction and removal of minerals, and the development of any and all geothermal resources, from the ground, design engineering, other engineering, erection or transportation facilities and port facilities, erection of necessary plants, other necessary operations or development approved by the board preceding or connected with the actual extraction of minerals and the development of geothermal resources.

"Occupier" means any person who owns in fee the surface of the land or 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 from the state, and also means and includes the assignee of the right to a mining lease from any one of the above.

"Operator" means any person as defined herein engaged in drilling, maintaining, operating, producing, or having control or management of any geothermal well or the development of geothermal resources. The operator may be the landowner, the lessee, designated operator, or agent of the lessee or holder of rights under an approved operating agreement.

"Person" means a United States citizen of legal age, association of the citizens, firms and corporations organized under the laws of the United States, any state or District of Columbia and qualified to do business in the state, including any governmental unit, trust or estate.

"Reserved lands" means those lands owned or leased by any person in which the state or its predecessors in interest has reserved to itself, expressly or by implication the minerals or right to mine minerals, or both.

"State lands" includes all public and other lands owned by or in possession, use and control of the State of Hawaii or any of its agencies.

"Unit agreement" means an agreement or plan of development and operation for the production and utilization of geothermal resources as a single consolidated unit without regard to separate ownerships and which provides for the allocation of costs and benefits on a basis defined in the agreement or plan.

"Waste" means the unnecessary or excessive dissipation or loss of geothermal resources resulting from the location, spacing, drilling, equipping, operation or production of a geothermal resources well or wells, or with respect to the production, gathering, transportation, storage, handling or utilization of geothermal resources. [Eff. JUN 22 1981] (Auth:

HRS §182-14) (Imp: HRS §§182-1, 182-14)

§13-183-4 Penalty. Any person violating the provisions of this chapter shall be punished as provided in §§178-7 and 182-17, Hawaii Revised Statutes. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§178-7, 182-17)

§13-183-5 Appeal. Unless provided otherwise, any person adversely affected thereby may appeal to the circuit court from any ruling of the board pursuant to chapter 91, Hawaii Revised Statutes. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §178-10)

§13-183-6 Right of entry. Any authorized representative or employee of the department shall have free access and right of entry to all wells, producing facilities and their appurtenances for the purpose of inspecting or testing wells and equipment for the purpose of determining compliance with these rules. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §178-9)

## Subchapter 2. Geothermal Exploration Permits

§13-183-7 Exploration permit required on state and reserved lands. An exploration permit is required to conduct any exploration activity on state or reserved lands for evidence of geothermal resources. Exploration activity includes, but is not limited to, geophysical operations, drilling of shallow temperature test holes less than five hundred feet in depth, or deeper as may be determined by the board, construction of roads and trails, and cross-country transit by vehicle over state lands. All other drilling on state or reserved lands shall be regulated as provided in subchapters 8 through 13 herein. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-6)

§13-183-8 Application for exploration permits. Any person may apply for an exploration permit on any state or reserved land by submitting a written application to the board containing the following:

- (1) The name and address of the person, association, or corporation for whom the operations will be conducted and of the person who will be in charge of the actual exploration activities.
- (2) A description of the type of exploration activities

- proposed to be undertaken.
- (3) A description of the lands to be explored.
  - (4) A map or maps, available from state or federal sources, showing the lands to be entered or disturbed.
  - (5) The approximate dates of the commencement and termination of exploration activities.
  - (6) A statement by applicant agreeing to submit to the board within twenty calendar days after notification by the board that the permit application has been approved by a surety company bond in the amount of \$10,000 payable to the State conditioned upon compliance with all terms and conditions of the exploration permit. If any person holds more than one exploration permit in the State, that person may file with the board, in lieu of separate bonds for each exploration permit, a blanket bond in the amount of \$50,000.
  - (7) The name and address of the surface owner of the land.
  - (8) Evidence that the owner and surface lessee, if any, has or has not consented to the entry upon the land and a description of the efforts made and the reasons for not securing the consent.
- [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS

§182-6)

§13-183-9 Permit filing fee. Each application shall be accompanied by a non-refundable filing fee in the amount of \$100.  
 [Eff. JUN 22 1981]  
 (Auth: HRS §182-14) (Imp: HRS §§182-6, 171-6)

§13-183-10 Number of permits. The number of permits shall be in accordance with and as provided in §182-8 Hawaii Revised Statutes.  
 [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-8)

§13-183-11 Approval of permit applications. All applications shall be subject to the approval of and the terms and conditions set by the board. Any application for a geothermal exploration permit not approved within sixty calendar days after the date of receipt of the application shall be resubmitted unless the same has been extended by the board.  
 [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-6)

§13-183-12 Non-exclusive permits. Geothermal exploration permits under this subchapter allow only non-exclusive access to

state or reserved lands for geothermal exploration activity prescribed in §13-183-7 and do not provide any preference rights to a mining lease of the lands explored by the permits. In the event an exploration permit is in effect on or issued after the commencement date of a mining lease covering all or part of the same state or reserved lands, the permittee's rights shall be subordinate to the lessee's rights and the permittee's exploration activities shall not unreasonably interfere with or prevent the mining lessee's use of the leasehold. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-6)

§13-183-13 Duration of permits. Exploration permits shall be valid for a period of one year from date of issuance, but may be renewed for an additional period of time at the discretion of the board. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-6)

§13-183-14 Confidentiality of exploration results. Within sixty days after the termination date of an exploration permit, the permittee shall submit the results of the exploration to the chairperson of the board, which result shall be kept confidential by the board. If the permittee makes an application for a geothermal mining lease of the lands explored within a period of six months from the date the results are submitted to the board, the board shall continue to keep the results confidential until a lease for the lands has been issued or for three years from the date of submission of the data, whichever is sooner. If the permittee does not make an application for a geothermal mining lease or leases for the lands explored within a period of six months from the date the results are submitted to the board, the board at its discretion need not keep the results confidential. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-6)

§13-183-15 Departmental investigation. The department may conduct scheduled and unscheduled inspections and investigations of operations conducted under geothermal exploration permits. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§177-5, 199-3)

§13-183-16 Suspension of permits. The chairperson may issue an order immediately suspending operations conducted under a geothermal exploration permit if the permittee is in violation of any terms or conditions of the permit or, in the judgment of the chairperson, the operations jeopardize the health, safety,

and welfare of the public. Any suspension shall be referred to and reviewed by the board at its next regular meeting. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-17 Cancellation of permits. The board may cancel an exploration permit if it finds, after notice to the permittee and allowance for an opportunity for hearing and compliance with the requirements of the permit, that permit requirements are not being observed. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-6, 182-14)

§13-183-18 Compliance with applicable laws. The permittee shall be required to comply with the requirements of all federal, state, and applicable county laws, rules, and regulations. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

### Subchapter 3. Leases Generally

§13-183-19 Geothermal mining leases. The board may, in accordance with these rules grant mining leases conveying to the lessee the exclusive rights to drill, discover, develop, operate, utilize, and sell geothermal resources on state and reserved lands, subject, however, to the board's right to issue exploration permits on the leased land for the sole purpose of evaluating the extent of geothermal resources existing on adjacent state or reserved land. The board shall set forth the terms and conditions of the mining lease prior to the public auctioning or granting without public auction. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-4, 182-5)

§13-183-20 Geothermal resources available for leasing. All state and reserved lands shall, at the discretion of the board, be considered available for geothermal mining leases. [Eff. JUN 22 1981] (Auth: HRS: §182-14) (Imp: HRS 182-4)

§13-183-21 Persons eligible to hold leases. Any person as defined in §13-183-3 of these rules shall be eligible to lease geothermal resources in state or reserved lands or take or hold an interest therein, unless the person is in arrears in the payment of taxes, rents or other obligations owing the State or any of its political subdivisions. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§171-36, 182-14)

§13-183-22 Mining leases by public auction. Mining leases on state lands shall be granted only on a competitive bid basis at public auction as provided in subchapter 4. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-4)

§13-183-23 Mining leases without public auction. Mining leases on reserved lands may be granted on a competitive bid basis by public auction or without public auction to the occupier or to his assignee of the rights to obtain a mining lease, upon the vote of two-thirds of the board members, pursuant to §182-5, Hawaii Revised Statutes. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-5)

§13-183-24 Size of leaseable tract. Unless otherwise approved by the board a geothermal mining lease shall not embrace an area of more than 5,000 acres of contiguous land. No lease shall grant and include an area of more than 2,560 acres of contiguous land if that area's longest dimension is six times greater than its narrowest dimension. A geothermal mining lease shall embrace an area of not less than 100 acres, unless the board, at its discretion, deems otherwise. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-8)

§13-183-25 Transfer of mining leases; overriding royalty interests. (a) Any transfer of a mining lease, which includes the assignment or sublease thereof, shall be subject to the approval of the board. No transfer of a mining lease to a minor shall be approved except to a permittee's heir or devisee. All applications for approval of transfers shall be accompanied by a non-refundable fee of \$100 for each assignment.

(b) Upon approval of the board a mining lease may be transferred in whole or in part, to a transferee who shall have the same qualifications as any bidder for a mining lease. The transferee shall be bound by the terms of the lease to the same extent as if the transferee were the original lessee. The board may release the transferor from any liabilities or duties under the mining lease as to the portion thereof transferred except for any liability or duty which arose prior to the approval of the transfer by the board and which remains unsatisfied or unperformed.

(c) No transfer shall be effective until written approval is given.

(d) A lease may be transferred as to all or part of the acreage included therein to any person qualified to hold a state lease, provided that neither the transferred nor the retained

acreage created by the transfer shall contain less than one hundred acres unless the board at its discretion approves otherwise. No undivided interest in a lease of less than ten percent shall be created by any voluntary transfer.

(e) The transferor and its surety shall continue to be responsible for performance of any and all obligations under the lease unless released by the board. After the approval of any transfer, the transferee and surety shall be bound by the terms of the lease to the same extent as if the transferee were the original lessee, any conditions in the transfer to the contrary notwithstanding.

(f) Where a transfer does not convey a separate interest in the record title to the lease, the transferee, if the transfer so provides, may become a joint principal on the bond with the transferor. The application shall also be accompanied by a consent of the surety to remain bound under the bond of record, if the bond, by its terms, does not contain the consent. If a party to the transfer has previously furnished a statewide bond, no additional showing by the party is necessary.

(g) Overriding royalty interests in geothermal leases constitute accountable acreage holdings under these rules and shall be based on the percentage of overriding royalty multiplied by the acreage involved. If an overriding royalty interest is created which is not shown in the instrument of transfer, a statement shall be filed with the chairperson describing the interest. Any transfer shall be accompanied by a notarized statement that the transferee is a person as defined in these rules and that their interests in geothermal leases do not exceed any acreage limitations established. All transfers of overriding royalty interests without a working interest and otherwise not contemplated by §13-183-25 shall be filed for record in the office of the department in Honolulu within ninety days from the date of execution. The interests do not require approval. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-11)

§13-183-26 Revocation of mining leases. (a) A mining lease may be revoked by the board if the lessee fails to pay rentals or royalties when due or fails to comply with any of the other terms of the lease, law, or rules, or if the lessee wholly ceases all mining operations for a period of one year without the written consent of the board for reasons other than force majeure or the production of less than commercial quantities of geothermal resources or by-products. Before revocation of a lease for defaults other than the failure to pay rents or royalties when due, the board shall give the lessee written notice of the claimed default and an opportunity to be heard within thirty days of the notice. The lessee shall be allowed

sixty days to correct the default or, if the default is one that cannot be corrected within sixty days to commence in good faith and thereafter proceed diligently to correct the default, following written notice of a determination after hearing by the board that the default exists. Failure to comply with the foregoing shall be deemed sufficient cause for revocation. Defaults arising because of failure to pay rents or royalties when due shall be cured within sixty days of a written notice of default or the lease may be revoked. In the alternative, the lessee may surrender the lease pursuant to §13-183-27.

(b) Upon the revocation of a geothermal mining lease, lessor shall have the right to retain the improvements or require the lessee to remove the same and restore the premises to a similar condition prior to any development or improvements, to the extent reasonably possible. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-10)

§13-183-27 Surrender of mining leases. Any lessee of a mining lease, who has complied fully with all the terms, covenants, and conditions of an existing lease and provisions of these rules, may with the consent of and under the terms and conditions set by 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 pursuant to §182-13, Hawaii Revised Statutes, unless the law provides otherwise. Upon any approved surrender, the lessee shall be relieved of all further obligations with respect to the lands so surrendered except for previous activities conducted on the land or under the lease. 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 all rentals, royalties, and payments paid to the State pursuant to the lease. The lessee shall be entitled to all equipment, buildings, and plants placed on the land surrendered and the lessor may require the lessee to remove the same and restore the premises to a similar condition prior to any development or improvements, to the extent reasonably possible. [Eff. JUN 22, 1981] (Auth: HRS §182-14) (Imp: HRS §182-13)

§13-183-28 Number of mining leases; undeveloped acreage limitations. (a) There shall be no limit on the number of geothermal mining leases that may be granted to a person undertaking any geothermal mining operation or production, unless

otherwise authorized by law.

(b) No person shall, unless it is a charitable trust existing in the State of Hawaii on the effective date of these rules, take hold, own, or control at any one time, whether acquired from the board under these rules by lease or approved transfer of lease, or indirectly, a divided or undivided interest in geothermal resources in state or reserved lands in excess of 80,000 undeveloped acres. This acreage limitation may be increased by the board where, in the opinion of the board, the increase is in the best interest of the State in the promotion and development of geothermal resources.

(c) In computing total holdings, ownership, or control, no person shall be charged with an interest through any association, firm or corporation unless it is the beneficial owner of ten percent or more of the stock or other instruments of ownership or control of the association, firm, or corporation. In this case and in the case of an undivided interest, the amount of acreage chargeable to the person shall be the pro-rata amount of acreage based on the percentage of stocks or interest owned. Persons owning an overriding royalty or other interest determined by or payable out of a percentage of production from a lease shall be charged with an interest. Undeveloped acreage which subsequently is unitized with the approval of the board or is actually producing geothermal resources in commercial quantities and paying production royalties shall not be included in accountable interests in determining the 80,000-acre undeveloped acreage limitation. Any and all leases creating the excess undeveloped acreage may be canceled or forfeited in their entirety by the board. A person may hold an unlimited interest in acreage which is producing geothermal resources and paying production royalties. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-8)

§13-183-29 Term of mining leases. (a) The term of all mining leases shall consist of a primary ten-year period and continuation periods which shall be as provided herein, except that the sum of primary and all continuation periods of the leases shall not exceed sixty-five years from the effective date of the initial lease. The effective date of all leases shall be the first day of the month following the board's signing of the lease.

(b) If during the primary period of a mining lease, geothermal resources or by-products are being produced or utilized in commercial quantities, that lease shall continue for so long thereafter as geothermal resources or by-products are produced or utilized in commercial quantities subject to the limitation of subsection (a) herein. Production or utilization

of geothermal resources in commercial quantities for purposes of this subsection 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 not later than fifteen years from the date of commencement of the primary term of the lease.

(c) If, at the end of the primary term of a mining lease, geothermal resources are not being produced from the leased land, but the lessee is actively engaged in drilling operations under said lease below the depth of 1,000 feet or at a lesser depth of productive zone in a diligent manner, that lease may be continued, at the discretion of the board, for a period of not more than five years and for as long thereafter as geothermal resources are being produced or utilized in commercial quantities subject to the sixty-five year limit provided in subsection (a) herein.

(d) If the board determines that the lessee has voluntarily shut in production for lack of a market but 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 be continued in force for the duration of the primary term or for five years after shut-in, whichever is longer, upon payment of rentals, or the lease may be terminated by the board. The chairperson shall continue to review shut-in leases at least once every five years until production in commercial quantities occurs, the lease is terminated by the board for lessee's lack of due diligence, or surrender by the lessee.

(e) If production of geothermal resources under a lease ceases from any cause after expiration of the primary term or before the end of the primary term if production has commenced, that lease shall continue so long as the lessee actively and continuously engages in drilling or reworking operations which shall be commenced within one hundred eighty days after cessation of production. Continuous drilling or reworking operations shall be deemed to have occurred if no more than one hundred eighty days elapses between cessation of operations on one well and commencement of operations on the same or another well. If the operations are successful, the lease shall continue for so long thereafter as geothermal resources are produced or utilized in commercial quantities, subject to subsection (a) herein.

(f) If the lessee is rendered unable wholly or in part by force majeure to carry out its obligations under a lease, lessee shall give to lessor prompt written notice of the force majeure. Any obligations of the lessee to perform so far as they are affected by the force majeure shall be suspended during the continuance of the force majeure and the primary term or any

continuation period shall be extended for a period equal to the period of suspended performance caused by the force majeure. Lessee shall use all possible diligence to remove or correct the force majeure; provided, however, that any cure shall not require the settlement of strikes, lockouts or other labor difficulties. In no event shall any extension affect the sixty-five year term of any lease. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-7)

§13-183-30 Rentals. (a) The lessee of a mining lease shall pay to the State in advance each year the annual rental specified for each acre or fraction thereof under the lease. The annual rental for the first year of the lease shall be due and payable and shall be received in the office of the department in Honolulu within two days after the acceptance of the bid by the board and the \$500 bid deposit shall be credited against the sum. Where a lease is granted without public auction, the board may impose other terms and conditions for first-year rental payment. Second year and subsequent rental payments shall be received in the office of the department in Honolulu on or before the anniversary date of the lease.

(b) Annual rentals for each acre or fraction thereof under lease by public auction or negotiation shall be at the price bid at public auction or as set by the board, respectively. The annual rental due and paid each year shall be credited against production royalties due and accrued during that same year. The annual rental due a given year shall not be credited against production royalties due in future years. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-9)

§13-183-31 Royalties on geothermal production. (a) The rate of the royalty to be paid to the State for the production of geothermal resources shall be determined by the board prior to the bidding for or granting of a mining lease, but the rate shall not be less than ten percent nor more than twenty percent of the gross amount or value of the geothermal resources produced under the lease as measured at the wellhead and sold or utilized by the lessee. The board may readjust the rate of royalty of any geothermal mining lease at not less than fifteen-year intervals beginning thirty-five years after the effective date of the lease. In the event of any readjustment, the rate of royalty may not be increased by more than fifty percent over the royalty paid during the preceding period. The board shall give notice of any proposed readjustment of royalties and unless the lessee files with the board objection to the proposed royalties or surrendered the lease within thirty days after receipt of such notice, the

lessee shall conclusively be deemed to have agreed with the terms and conditions. If the lessee files objections and no agreement can be reached between the board and the lessee within a period of not less than sixty days, the lease may be terminated by either party. In no event shall the rate of the royalty payable exceed twenty percent of the gross value. In addition to the above, the board may also impose a royalty based on a percentage of the net profit, cash bonus, or otherwise.

(b) For the purpose of computing royalties, the amount or value of geothermal resources produced shall be determined as the gross proceeds received by the mining lessee from the sale or use of geothermal resources produced from the leased land as measured at the wellhead. In the event that geothermal production hereunder is not sold to a third party but used or furnished to a plant owned or controlled by the lessee, the gross proceeds of the production for purposes of computing royalties shall be that which is reasonably equal to the gross proceeds being paid to other geothermal producers for geothermal resources of like quality and quantity under similar conditions after deducting any and all treating, processing, and transportation costs incurred. In the case of furnished geothermal resources, should the board believe that any stated charges imposed and deducted are excessive or that the stated sales price received by the lessee is unreasonable, the lessee shall, upon thirty days notice, provide the board with evidence that the charges or price or both comply with the above requirement of reasonably equal gross proceeds. Gross proceeds shall not be deemed to include excise, production, severance, or sales taxes or other taxes imposed on the lessees by reason of the production, severance, or sale of geothermal resources or geothermal by-products.

(c) The rate of royalty to be paid to the State for any geothermal by-product contained in and extracted from the effluence produced shall be not less than five percent nor more than ten percent of the gross proceeds received by the lessee from the sale of any by-product produced under the lease as measured at the wellhead and sold, exchanged, or otherwise disposed of by the lessee, including demineralized or desalted water, after deducting any treating, processing, and transportation costs incurred. No payment of a royalty shall be required on the water if it is used in plant operation for cooling or generation of electric energy or is reinjected into the sub-surface. No royalty shall be paid for geothermal by-products used or consumed by lessee in the production operations. The board may readjust the rate of royalties for the production of geothermal by-products in the same manner and under the same terms prescribed in subsection (a) herein; provided that the rate of royalty for geothermal by-products payable shall not exceed ten percent of the gross proceeds. Gross proceeds shall not

include the taxes described in subsection (b) herein.

(d) The lessee shall make payment of royalties to the board in Honolulu within thirty days after the end of each calendar month and accompany the payment with a certified true and correct written statement by the lessee, showing the amount of each geothermal resource produced, sold, used, and otherwise disposed of, and the basis for computation and determination of royalties. Lessee shall furnish other data as may be necessary to enable the board to audit and verify all royalties due and payable to the State.

(e) Metering equipment shall be maintained and operated by lessee in a manner that meets acceptable standards of accuracy consistent with geothermal industrial practices. Use of the equipment shall be discontinued at any time upon determination by the chairperson that the standards of accuracy or quality are not being maintained. If the equipment is found defective, the chairperson shall determine the quantity and quality of production.

(f) The lessee shall furnish the chairperson the results of periodic tests showing the content of by-products in the produced geothermal resources. Tests shall be taken as specified by the chairperson and by the method of testing approved by him; provided that tests not consistent with industrial practices shall be conducted at the expense of the State. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-7)

§13-183-32 Commingling. Lessee shall have the right, at its election prior to sale, to commingle geothermal resources produced from the leased land with that produced from other leases held by lessee or by other lessees as specified in the lessee's approved plan of operation for the lease. Prior to commingling of geothermal production the lessee shall determine the quantities and value of the production upon which royalties are due under the lease and shall make all determinations, measurements, and samples in accordance with good geothermal industrial practices. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-7, 182-8, 182-14)

§13-183-33 Unit or cooperative plans. (a) For the purpose of more properly conserving the natural resources of any geothermal pool, field, or like area, lessees under leases issued by the board, may, with the written consent of the board, utilize the state lands under a unit, cooperative, or other plan of development or operation with other state, federal, or privately owned lands. Applications shall be filed with the board which shall certify whether the plan is necessary or advisable in the

public interest. The board may require whatever documents or data it deems necessary to make its determination. The board may, with the consent of its lessees modify and change any and all terms of leases issued by it which are committed to the unit, cooperative, or other plans of development or operations.

(b) The unit agreement shall describe the separate tracts comprising the unit, disclose the apportionment of the production or royalties and costs to the several parties and the name of the operator, and shall contain adequate provisions for the protection of the interests of all parties, including the State. The unit agreement shall be signed by or in behalf of all necessary parties before being submitted to the board. It shall be effective only after approval by the board. The unit operator shall be a person as defined by these rules and approved by the board.

(c) The owners of any right, title, or interest in the geothermal resources to be developed or operated under an agreement are regarded as proper parties to a proposed agreement. All the owners shall be invited to join as parties to the agreement. If any owner fails or refuses to join the agreement, the proponent of the agreement shall declare this to the board and shall submit evidence of efforts made to obtain joinder of the owner and the reasons for nonjoinder.

(d) In lieu of separate bonds required for each lease committed to a unit agreement, the unit operator may furnish and maintain a collective corporate surety bond or a personal bond conditioned upon faithful performance of the duties and obligations of the agreement and the terms of the leases subject thereto and these rules. Personal bonds shall be accompanied by a deposit of negotiable federal securities in a sum equal in value to the amount of the bond and by a proper conveyance to the board with full authority to sell the securities in case of default in the performance of the obligations assumed. The liability under the bond shall be for the amount as the board shall determine to be adequate to protect the interests of the State. Additional bond coverage may be required whenever deemed necessary by the board. In case of changes of unit operator, a new bond shall be filed or a consent of surety to the change in principal under the existing bond shall be filed with the board.

(e) Any modification of an approved agreement will require approval of the board under procedures cited in subsection (a) herein.

(f) The term of all leases included in any cooperative or unit plan of development or operation shall be continued automatically for the term of the unit or cooperative agreement, but in no event beyond that time provided in §13-183-29. Rentals or royalties on leases so extended shall be at the rate specified in the lease.

(g) Any lease which is to be eliminated from any cooperative or unit plan of development or operation, or any lease which shall be in effect at the termination of any cooperative or unit plan of development or operation, unless relinquished, shall continue in effect for the term of the lease or for one year after its elimination from the plan or agreement or the termination thereof, whichever is longer, and so long thereafter as lessee engages in diligent and continuous drilling as provided in §13-183-61, or so long thereafter as geothermal resources are produced in commercial quantities, but in no event beyond the time provided in §13-183-29(a).

(h) Before issuance of a lease for lands within an approved unit agreement, the lease applicant or successful bidder shall be required to file evidence that an agreement has been entered into with the unit operator for the development and operation of the lands in a lease if issued to the unit operator under and pursuant to the terms and provisions of the approved unit agreement, or a statement giving satisfactory reasons for the failure to enter into agreement. If the statement is acceptable, the unit operator will be permitted to operate independently, but will be required to perform operations in a manner which the board deems to be consistent with the unit operations. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-9.5)

§13-183-34 Bond requirements. Every lessee of a mining lease or transferee thereof shall file with the board, a bond in the amount of \$10,000 in a form approved by the board and made payable to the State, conditioned upon faithful performance of all requirements of chapter 182, Hawaii Revised Statutes, of these rules, and of the mining lease, and also conditioned upon full payment by the lessee of all damages suffered by the occupiers, in the case of state and reserved lands. If any person holds more than one lease in the State it may file with the board in lieu of separate bonds for each lease or a blanket bond in the amount of \$50,000. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-3)

§13-183-35 Liability insurance. (a) Prior to entry upon the leased lands, lessee or lessee's assignee, sublessee, or transferee shall cause to be secured and to be thereafter maintained in force during the term of the lease, public liability and property damage insurance from an insurance company licensed to do business in the State in amounts to be determined by the board and stated in the geothermal lease for injuries to persons, wrongful death, and damages to property caused by any occupancy, use, operations, or any other activity on leased lands

carried on by lessee, or lessee's assignee, sublessee, or transferee, and its agents or contractors in connection therewith. Liability coverage for explosion, collapse, and underground hazards are to be included prior to any drilling of a well for geothermal discovery, evaluation, or production. Lessee shall evidence the additional coverage to the chairperson 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 to a person other than the lessee, the owner or lessee of surface rights and improvements shall be a named insured. The State, any owner, and any lessee of surface rights and improvements shall be a named insured in all instances. These 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 Chairperson 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 "named insureds") are insureds under the terms of this policy; provided, however, said insureds shall not be insured hereunder for any primary negligence or misconduct on their part, but shall be insured hereunder for secondary negligence or misconduct, which shall include the failure to discover and cause to be corrected the negligence or misconduct of lessee, its agents or contractors. This insurance policy shall not be canceled without thirty days prior written notice to the Board and all named insured. None of the foregoing additional insureds are liable for the payment of premiums or assessments on this policy."

(b) No cancellation provision in any insurance policy shall release the lessee of duty to furnish insurance during the term of this contract. The policy or policies shall be underwritten to the satisfaction of the chairperson. A signed and complete certificate of insurance, with the endorsement required by this subsection, shall be submitted to the chairperson prior to entry upon the leased land. At least thirty days prior to the expiration of any policy, a signed and complete certificate of insurance, with the endorsement required by this paragraph showing that the insurance coverage has been renewed or extended, shall be filed with the chairperson. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-3, 182-14)

§13-183-36 Hold harmless. In addition to the insurance requirements of §13-183-35 the mining lessee shall expressly agree to hold harmless and indemnify the State and its divisions,

departments, agencies, officers, agents and employees, together with the owner or lessee of the surface rights of the leased land, if any, from any and all liabilities and claims for damages 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 mining lessee, his agents, employees, contractors, or invitees, or third persons, from any cause or causes whatsoever caused by any occupancy, use, operation or any other activity on the leased land or its approaches, carried on by the mining lessee, his agents, employees, contractors, or invitees, in connection therewith; and the mining lessee shall covenant and agree to indemnify and save harmless the State, the board, the chairperson, 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 death or injury, damage, liabilities, claims, suits or losses. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-37 Title. The State 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 the title as the State may have as of the effective date of the lease or may 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 as determined by the courts or otherwise, then the rents and royalties provided for in the lease shall be paid to the State only in the proportion which its interest bears to the whole for which royalty is payable, and the State shall be liable to those persons for any prior payments made as adjudged by the courts or otherwise; provided, however, that the State shall not be liable for any damages sustained by the lessee. The geothermal resources shall be considered a property right. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-2)

#### Subchapter 4. Leases; Procedure for State Lands

§13-183-38 Application to board; filing fee. (a) Any person as defined in these rules may apply to the board for a mining lease on state lands. The board at its discretion may offer the lands for lease. The applicant shall submit three copies of a written application on forms provided by the department and all application forms shall be completed in full, signed by the applicant or his authorized representative with

proof of authorization, three copies of all necessary exhibits, and the filing fee.

(b) Each application for a mining lease shall be accompanied by a non-refundable filing fee in the amount of \$100. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-4)

§13-183-39 Lease application exhibits. (a) Each application for a geothermal mining lease shall be accompanied by the following exhibits:

- (1) An accurate description and map of the land desired to be leased.
- (2) A description of the known or potential geothermal resource desired to be leased for exploration and development.
- (3) Brief preliminary proposal of plan for geothermal exploration and development and an assessment of the environmental impact from geothermal resource exploration and development.
- (4) Certificate that the applicant is qualified to hold a mining lease under §13-183-21 and that the officer executing the application is authorized to act on behalf of the partnership, corporation, or association, and that geothermal interests held do not exceed the acreage limitation prescribed in §13-183-28.

(b) Information furnished by the applicant shall be kept confidential by the board until the land has been offered for leasing at public auction and for the additional period of time as the board may deem necessary. Only a description of the land nominated for leasing may be made public by the board. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-4)

§13-183-40 Public notice of lease applications. Public notice of lease applications shall be as provided in §182-4, Hawaii Revised Statutes. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-4)

§13-183-41 Consideration of applications. Within twelve weeks from the date of the first publication of notice of a lease application for state land or as soon as practicable thereafter, the board may hold a public hearing to decide whether or not to lease the land and if deemed appropriate may modify the area sought to be leased. Prior to making its decision, the board may require an applicant to submit a full evaluation of the potential effect of geothermal exploration and development on the environment, fish and wildlife resources, aesthetics, population,

and other resources in the area. This evaluation shall consider the potential impact of possible geothermal development and utilization including the construction of power generating plants and transmission facilities. The board shall consider the views and recommendations of other governmental agencies, organizations, industries and lease applicants and shall consider all other potential factors, such as use of the land and its natural resources, the need for geothermal energy development and socioeconomic conditions consistent with multiple-use management principles. The board's decision whether or not to lease and selection of the area to be offered for lease shall be final and not subject to judicial review. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-4)

§13-183-42 Rejection of lease applications. 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 may disapprove the application for a mining lease of the land. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-2)

§13-183-43 Approval of lease applications. 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, the board shall determine the area to be offered for lease and determine any special terms and conditions to be included in the lease to provide for orderly and optimum geothermal development, to protect the environment, to permit use of the land for other purposes, and to protect other natural resources. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp. HRS §182-2)

§13-183-44 Public notice of lease sales. When the board has approved a mining lease to be offered for sale by competitive bidding at public auction, it shall cause a notice to be published in a newspaper of general circulation in the State and in the county where the land is located at least once in each of three successive weeks, setting forth the time and place of public auction, the description of the land, the geothermal rights to be leased, and the terms and conditions of the lease sale including upset or minimum rental rate, royalties, cash bonus, percentage of the net profit or otherwise. The notice shall also indicate that a proposed plan of operation shall be filed and approved before the lessee shall be permitted to commence operations of any kind. [Eff. JUN 22 1981] (Auth:

HRS §182-14) (Imp: HRS §182-4)

§13-183-45 Qualification of bidders. At least thirty days before the announced date of any public auction, all bidders shall have submitted to the board evidence of their experience and financial ability to conduct geothermal explorations, drill geothermal wells, and develop geothermal resources. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-14, 171-6)

§13-183-46 Bidding requirements. On or before the announced date of the public auction, each prospective bidder shall deposit with the board a certified or cashier's check payable to the State in the amount of \$500 and submit a statement that the person is eligible to hold a mining lease as prescribed in §13-183-21. The deposit shall be forfeited by prospective bidders who fail to bid or returned to the unsuccessful bidders. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-9)

§13-183-47 Award and execution of leases. (a) The lease offered for bid shall be awarded to the highest responsible qualified bidder. The board reserves the right to reject any and all bids or waive any defects which will be in the best interest of the State. If the board fails to award the lease within sixty days after the date of the public auction, all bids for that lease will be considered rejected. Deposits on rejected bids shall be returned. Within two days after acceptance by the board of the highest responsible bid, the successful bidder shall pay to the board the amount of the first year's rental bid and the \$500 deposit shall be credited against the sum.

(b) Three copies of the lease will be sent to the successful bidder who shall within thirty days from delivery thereof be required to execute and return them, and to file the required bond or bonds. When the three copies of the lease are executed by the successful bidder and returned to the chairperson, the lease will be executed by the authorized officers of the board and a copy will be mailed to the lessee. If the successful bidder fails to execute the lease or otherwise comply with the applicable rules, their deposit will be forfeited. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-9, 182-14)

## Subchapter 5. Leases; Procedures for Reserved Lands

§13-183-48 Application to board. Applications for mining lease on reserved lands shall be made to the board in accordance with §13-183-38, 13-183-39, 13-183-42 and 13-183-43. [Eff. ] (Auth: HRS §182-14) (Imp: HRS §182-5)

§13-183-49. Approval of leasing by public auction. If the occupier or the assignee of the right to obtain a mining lease fails to apply for a mining lease within six months from the date of notice from the board of its finding of public interest that the reserved lands be mined, a mining lease shall be granted by public auction under subchapter 4, provided that 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. The board may also require the payment of a cash bonus, percentage of the net profit, or otherwise. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-5)

§13-183-50 Approval of leasing without public auction. The board may, by the vote of two-thirds of its voting members, grant a mining lease on reserved lands to the occupier thereof or the occupier's assignee of the right to apply for a lease thereof without public auction pursuant to §182-5, Hawaii Revised Statutes. The board shall determine the annual rental to be paid to the State for the right to develop and utilize the geothermal resources reserved to the state and the royalty on geothermal production as prescribed in §13-183-31. The board may also require the payment of cash bonus, percentage of the net profit, or otherwise. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-5)

#### Subchapter 6. Leases; Surface Rights and Obligations

§13-183-51 Compensation to occupiers. The mining lessee shall negotiate in good faith with the occupier of state or reserved lands for the settlement of all claims for damages to occupier's crops, improvements, or surface of the land caused by the mining lessee's operations. The lessee shall hold the board exempt and harmless from and against any and all damage claims. Nothing herein shall be construed to prevent the occupier of reserved lands from demanding and receiving rentals from the lessee of the mining lease. The occupier may, in writing before or within thirty days after the public auction, notify the board to either have the amount of damages or the amount of rentals be paid as compensation as a result of the award of a mining lease.

Compensation shall be determined by arbitration with the successful bidder and shall proceed in accordance with chapter 658 of the Hawaii Revised Statutes. The arbitrators in fixing the amount of damages to be paid to the occupier shall award an amount which, in their judgement, shall fairly compensate the occupier for the damages suffered to crops or improvements or to the surface or condition of the land caused by the mining or other incidental operations, including exploratory work, and a reasonable rental for the use of the surface of the land. If the arbitrators are unable, for any reason, to determine the amount of the damages, the arbitration hearing may be continued for a reasonable time to determine more accurately the amount of damages suffered. Nothing herein shall prevent the occupier from reopening the arbitration in the event of further damages. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-3, 182-15)

§13-183-52 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 incidental 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 an approved plan of operation and amendments thereto, as provided in §13-183-55 and 13-183-56. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-2, 182-7)

§13-183-53 General conditions. (a) Use of state lands under the jurisdiction and control of the board are subject to the supervision of the board. Use of state lands under the control of the other state agencies are subject to the supervision of the appropriate state agency consistent with these rules.

(b) The board reserves the right to lease, sell or otherwise dispose of the surface of state lands embraced within a mining lease, insofar as the surface is not necessary for use by the lessee in the exploration, development and production of the geothermal resources and associated by-products, but any lease, sale, or other disposal of surface rights if made, shall be subject to the rights of the mining lessee.

(c) The chairperson 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 board may deem fit and proper.

(d) During operations, the lessee shall regulate public access and vehicular traffic to cause the least practicable interference with the use of the surface of the land and 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 chairperson as part of the plan of operations and amendments thereto required under §13-183-55.

(e) Lessee shall take all necessary steps in the exploration, development, production and marketing of geothermal resources to avoid a threat to life or property or posing an unreasonable risk to subsurface, surface or atmospheric resources. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

#### Subchapter 7. Leases; Mining Operations

§13-183-54 General terms. (a) The operator under a lease shall conduct all operations in a manner that conforms to the most prudent practices and engineering principles in use in the industry. Operations shall be conducted in a manner that protects 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 chairperson of all accidents within twenty-four hours and submit a written report within thirty days.

(b) The operator of a lease shall comply with all of the requirements, laws, rules, and regulations of the United States, the State and the appropriate county pertaining to the use of the premises or conduct of the operation.

(c) The operator of a lease shall take all reasonable precautions to prevent waste and damage to any natural resources including:

- (1) Vegetation, forests, and fish and wildlife;
  - (2) Injury or damage to persons, real or personal property;
- and
- (3) Degradation of the environment.

The chairperson may inspect lessee's operations and issue orders

necessary to accomplish these purposes.

(d) The chairperson is authorized to shut down any operation which is determined unsafe or 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 chairperson.

(e) The lessee shall designate a local representative empowered to receive service of civil or criminal process, and notices and orders of the chairperson issued pursuant to these rules as prescribed in §13-183-64.

(f) In all cases where exploration or mining operations are not to be conducted by the lessee but are to be conducted under an approved operating agreement, assignment or other arrangement, a designation of operator shall be submitted to the chairperson prior to commencement of operations. The designation shall be accepted as authority of the operator or the local representative to act for the mining 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 chairperson.

(g) The lessee shall commence mining operations on the leased lands within three years from the date of execution of the lease or upon the expiration of any research period approved by the board under §182-7, Hawaii Revised Statutes; provided that if the operator holds more than one lease this provision shall not apply to the other leases so long as the lessee is actively and on a substantial scale engaged in mining operations on at least one lease. Notwithstanding the above, the board may impose more stringent development requirements for any particular lease. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-7, 182-14)

§13-183-55 Plan of operations required. (a) A lessee shall not commence operations of any kind prior to submitting to the chairperson for board approval a plan of operations. The plan shall include:

- (1) 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;
- (2) Existing and planned access, access controls and lateral roads;
- (3) Location and source of water supply and road building material:

- (4) Location of camp sites, air-strips, and other supporting facilities;
- (5) Other areas of potential surface disturbance;
- (6) The topographic features of the land and the drainage patterns;
- (7) Methods for disposing of well effluent and other waste;
- (8) 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:
  - (A) Fires,
  - (B) Soil erosion,
  - (C) Pollution of the surface and ground water,
  - (D) Damage to fish and wildlife or other natural resources,
  - (E) Air and noise pollution and
  - (F) Hazards to public health and safety during lease activities.
- (9) A geologist's preliminary survey report on the surface and sub-surface geology, nature and occurrence of the known or potential geothermal resources, surface water resources, and ground water resources;
- (10) All pertinent information or data which the chairperson may require to support the plan of operations for the utilization of geothermal resources and the protection of the environment;
- (11) Provisions for monitoring deemed necessary by the chairperson to insure compliance with these rules for the operations under the plan.

(b) The information required above for items (1) through (6) shall be shown on a map or maps of 1:24,000 scale or larger, when required by the board.

(c) The board shall either approve, subject to the requirements of chapter 343 Hawaii Revised Statutes and to any terms or conditions it may specify at its discretion, or disapprove the plan of operation within sixty calendar days after the date of receipt of the plan. If the board disapproves the plan of operations it shall notify the applicant and the decision may be appealed as provided in §13-183-5. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-7. 182-14)

§13-183-56 Amendments to plan operations. After completion of all operations authorized under any previously approved plan of operation, the lessee shall not begin to redrill, repair, deepen, plug back, shoot, or plug and abandon any well, make casing tests, alter the casing or liner, stimulate production, change the method of recovering production, or use any formation or well for brine or fluid injection until the chairperson has

received and approved in writing a new or amended plan of operation. In an emergency a lessee may take action to prevent damage without receiving prior approval from the chairperson; provided, that the lessee shall report the action to the chairperson as soon as possible. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-7, 182-14)

§13-183-57 Drilling operations. (a) Upon commencement of drilling operations, the lessee shall mark each drilling site and each completed well site in a conspicuous place with the lessee's 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 shall diligently take all necessary precautions to:

- (1) Keep all wells under control at all times;
- (2) Utilize trained and competent personnel;
- (3) Utilize properly maintained equipment and materials;

and

- (4) 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 chairperson shall require that adequate samples be taken and tests or surveys consistent with industry practices be made without cost to the State, to determine:

- (1) The identity and character of geologic formations;
- (2) The quantity and quality of geothermal resources;
- (3) Pressures, temperatures, rate of heat, and fluid flow;

and

- (4) Whether or not operations are being conducted in the best interest of the public.

[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-58 Waste prevention, offset wells and geothermal by-products. (a) All mining leases shall be subject to the condition that the lessee shall, in conducting exploratory development and producing operations, use all reasonable precautions to prevent waste and conserve and provide for optimum

use of geothermal resources and other natural resources found or developed in the leased lands.

(b) If any waste of geothermal resources or by-products result from the willful misconduct or negligence of the operator or if the operator fails to take corrective action within a reasonable time after being notified in writing by the chairperson, the board shall determine the value of the loss or waste and the compensation due to the board, using the method for computing royalties set out in §13-183-31 (b) (c). Payment for the losses will be paid when billed. The board's determination of the value of the waste may be appealed as provided in §13-183-5.

(c) In the event any well located on other than state or reserved land is draining geothermal resources in commercial quantities from any land leased from the State, the board may notify the lessee in writing to drill an offset well thereto, and within one hundred twenty days from the date of the notice or the additional time as may be allowed by the chairperson, the lessee shall commence operations for the drilling of an offset well on the leased land to the same zone as that zone from which the well is producing geothermal resources or shall unitize with the well that is draining state land or pay to the State compensatory royalty. For the purpose of this section an offset well shall mean a well which a reasonably prudent geothermal operator would drill under similar circumstances. There shall be no obligation to unitize or pay compensatory royalty. To the extent provided by law, the board may require unitization of leases and lands involved.

(d) Subject to lessee's right to surrender a mining lease, where the board determines that production, use, or conversion of geothermal resources is susceptible of producing a by-product or by-products, including demineralized water contained in or derived from the geothermal resources and deemed suitable for beneficial use in accordance with chapter 177, Hawaii Revised Statutes, the board may require substantial production or use thereof unless the board determines that beneficial production or use would not be in the interest of conservation of natural resources, nor economically feasible or would not otherwise be in the public interest. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp. HRS §§178-3, 182-7, 182-9.5)

§13-183-59 Protection of other resources. (a) The lessee shall remove any derrick, equipment, or facilities within sixty days after lessee has ceased making use thereof in its operations.

(b) All permanent operating sites shall be landscaped or fenced to screen them from public view. The 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 a manner that eliminates 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 pollution. Determination of what is considered detrimental rests solely with the chairperson.

(d) Wastes shall be discharged in accordance with all federal, state, and local requirements.

(e) Any operation 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 a manner that will not result in unreasonable damage to trees and plant cover, soil erosion, or degradation of water resources.

(f) Existing roads, except public roads, and bridges on or serving the area under lease 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 the appropriate county requirements.

(g) Marketable timber on state or reserved lands which are damaged, destroyed, or used shall be compensated for at fair market value to the owners of the land. Borrow pit material shall not be obtained from state or reserved lands without permission and payment of market value to the owner.

(h) Improvements, structures, telephone lines, trails, ditches, pipelines, water developments, fences, permanent improvements, and crops of the owners shall be protected from damage and repaired or replaced when damaged or monetary compensation paid to the owners for the damage.

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

(j) Areas cleared and graded for drilling and production facility sites shall be kept to a reasonable number and size, and are subject to board approval.

(k) Lessee shall conduct its operations in a manner which will not interfere with the right of the public to use public lands and waters.

[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-60 Suspension of operations. In the event of any disaster and pollution, or likelihood of either, having or capable of having a detrimental effect on public health, safety, welfare, or the environment caused in any manner or resulting from operations under a lease, the lessee shall suspend any

testing, drilling, and production operations, except those which are corrective, or mitigative, and immediately and promptly notify the chairperson. The 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 chairperson. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-61 Diligent operations required. The lessee shall be diligent in the exploration or development of the geothermal resources on the leased lands. Failure to perform diligent operations may subject the lease to termination by the board. Diligent operations mean exploratory or development operations on the leased lands, including without limitation geochemical surveys, heat flow measurements, core drilling, or drilling of a well for discovery, evaluation, or production of geothermal resources. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-62 Records and reports. (a) Lessee shall at all times maintain full and accurate records of production and payments relating to lessee's operations and activities upon and in connection with the leased lands. All books and records of lessee pertaining to or necessary in determining royalty payments shall be open to inspection at all reasonable times by the authorized representatives of the department.

(b) The lessee shall furnish to the board for its confidential use, 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. The information shall be kept confidential as a trade secret for a period of one year from date of receipt, or longer at the discretion of the board. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§177-5, 182-14)

§13-183-63 Restoration of premises. Upon the revocation, surrender, or expiration of any mining lease, the lessor or surface owner may require the lessee to restore the lands covered by the lease to their original condition insofar as it is reasonable to do so within ninety days thereof, except for the roads, excavations, alterations or other improvements which may be designated for retention by the surface owner, the board or any state agency having jurisdiction over the affected lands. When determined by the board or the state agency, cleared sites and roadways shall be replanted with grass, shrubs, or trees by

the lessee. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§182-14, 182-15)

#### Subchapter 8. Drilling; Wells Generally

§13-183-64 Designation of agent. Any person who has drilled, is drilling, or proposes to drill any geothermal well shall designate on forms provided by the department an agent who shall be a resident of the State and upon whom may be served all orders, notices, and processes of the department or any court of law. Every person appointing an agent shall, within five days after the termination of any agency, notify the chairperson in writing of the termination, and unless operations are discontinued, shall appoint a new agent. All changes in the address of an agent shall be recorded with the chairperson within five days of the change of the address. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-65 Applications for permit to drill, modify, modify use, or abandon wells; permits. Prior to drilling, modifying, modifying use, or abandoning of any well, the operator of the well shall file with the chairperson an appropriate application for a permit to any work and shall obtain approval thereof. Each application for a permit shall be made on forms provided by the department and shall contain the following:

- (1) Name, signature and address of the applicant, the owner of the mining rights and the land owner if the applicant is not the land owner.
- (2) The number or other designation by which the well shall be known. The number or designation shall be subject to the chairperson's approval.
- (3) A plot plan showing the tax map key, site elevation, and well location reference to established property corners. A survey by a Hawaii licensed surveyor may be required by the department, if deemed necessary.
- (4) A statement by applicant of the purpose and extent of the proposed work and an estimate of the depths between which discovery, production, injection, or plugging will be attempted.
- (5) A description of the proposed drilling and casing program; and a plan or drawing showing the proposed work and vertical section of the well.
- (6) A statement by applicant agreeing to file a bond meeting the requirements of §13-183-68 with the chairperson within ten calendar days after notification that the application has been approved.

(7) A statement by applicant to perform the work and thereafter to operate and maintain the well in accordance with these rules and all other federal, state and county requirements.

(b) Applications for a permit shall be reviewed and acted upon by the chairperson within sixty calendar days after receipt.

(c) Permits shall be valid for a period of 365 calendar days from date of issuance, but may be renewed for an additional period of 180 calendar days at the discretion of the chairperson.

(d) A permit may be suspended or revoked by the chairperson. If it appears that any drilling or well work for which a permit has been issued is not being done in accordance with conditions of the permit or these rules, the chairperson shall notify the permittee to appear before him at a time and place designated in the notice to show cause why the permit should not be suspended or revoked and the well be plugged and abandoned or put in proper condition by the permittee. The notice shall state the grounds for suspension or revocation. After the hearing, the chairperson shall give an order of revocation, suspension or continuation of the permit. The order shall be subject to appeal as provided in §13-183-5. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§178-5, 182-14)

§13-183-66 Supplementary applications. A supplementary application shall be filed with the chairperson if there is any contemplated change in the original approved application. Written approval of the change shall be received from the chairperson before the change of work is started. In an emergency or when deemed necessary by the chairperson, the chairperson may give verbal approval to the operator to carry out the intent and purpose of these rules. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§178-5, 182-14)

§13-183-67 Filing fees. Each application for a permit to drill, modify, modify use or abandon a well shall be accompanied by a non-refundable filing fee in the amount of \$100. [Eff. JUN 22 1981] (Auth: HRS 182-14) (Imp: HRS §§182-4, 182-5)

§13-183-68 Bonds. (a) Any person who engages in the drilling, redrilling, deepening, maintaining, operating, or abandoning of any well shall file with the chairperson prior to the activity, an indemnity bond in the amount set by the board to protect the interests of the State, but in no case shall the amount be less than \$50,000 for each well or a blanket bond of \$250,000 for any number of wells. The amount of bond set by the board shall include the cost of plugging and abandoning the well

or wells in accordance with subchapter 11 should it be necessary. The bond shall be executed by the person, as principal, and by a surety company qualified to do business in the state, as surety, conditioned that the principal named in the bonds shall faithfully comply with these rules. The bonds shall inure to and indemnify the state and surface owners against all losses, charges, expenses and claims for damages or injuries caused or resulting from the drilling and operation of the wells.

(b) Bonds shall remain in force for the life of the well or wells and may not be released until the well or wells are properly abandoned as determined by the chairperson or another valid bond is substituted therefor. Any person who acquires the ownership or operation of any well or wells shall within five days after acquisition file with the chairperson a new indemnity bond or a consent by the surety to the change in principal under the existing bond. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-3)

§13-183-69 Set-back and well spacing. (a) Any well drilled for the discovery or production of geothermal resources or for injection of geothermal resources shall be located more than one hundred feet from the outer boundary of the parcel of land on which the well is situated, or more than one hundred feet from a public road, street, or highway dedicated prior to the commencement of drilling unless modified by the chairperson upon request. Where several contiguous parcels of land under one or more ownerships are operated as a single geothermal resources operating unit, the term "outer boundary line" means the outer boundary line of the lands included in a unit.

(b) The chairperson shall approve proposed well spacing programs or prescribe the modifications to the programs deemed necessary for the proper development and conservation of geothermal resources, considering such factors as:

- (1) Topographic characteristics of the area, hydrologic, geologic, and reservoir characteristics of the area;
- (2) The number of wells that can be economically drilled to provide the necessary volume of geothermal resources for the intended use;
- (3) Minimization of well interference;
- (4) Unreasonable interference with multiple use of lands;

and

- (5) Protection of the environment.

[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-70 Directional drilling. (a) Where the surface of a parcel of land is unsuitable for drilling, a directionally

drilled (other than a vertical direction) well may be located upon another parcel which may or may not be contiguous. The location of a well shall be not less than twenty-five feet from the outer boundary of the parcel of which it is located and not less than twenty-five feet from an existing street or road. The production or injection interval of a well shall be not less than one hundred feet from the outer boundary of the parcel into which it is drilled. Directional well surveys shall be filed with the department for all wells directionally drilled.

(b) No well shall be intentionally deviated from the vertical without the chairperson's approval. [Eff. JUN 22 1981]  
(Auth: HRS §182-14)  
(Imp: HRS §182-14)

§13-183-71 Casing and cementing requirements. (a) All wells shall be cased in a manner to protect and prevent or to minimize damage to the environment, ground water resources, geothermal resources, life, health, and property. The permanent well head completion equipment and all casing strings reaching the surface shall provide for adequate well pressure control, operational safety, and protection of all natural resources. Department specifications for casing strings shall be determined on a well-to-well basis. All casing strings reaching the surface shall provide adequate anchorage for blowout-prevention equipment, hole pressure control and protection for all natural resources. The casing requirements described below are general and should be used as guidelines in submitting proposed casing programs required to be filed with applications for permit.

(b) Conductor pipe shall be installed to a depth of a minimum of fifty feet and a maximum of one hundred fifty feet. In special cases the chairperson may allow conductor pipe to be run and cemented at deeper depths. The annular space between the hole and pipe shall be cemented solid to the surface.

(c) Surface casing shall be installed to provide for control of formation fluids, for protection of ground water resources, and for anchorage of blowout-prevention equipment. All surface casing shall be cemented solid to the surface.

(d) Surface casing shall be set to a minimum depth of ten percent of the proposed total depth of the well or five hundred feet, whichever is greater. If usable basal ground water is present or reasonably suspected to exist in the area, the depth of the surface casing shall be approved by the chairperson. If subsurface geological, hydrological, or geothermal conditions are to be or within the vicinity of the area to be drilled, then these conditions shall be used in determining and approving the depth of surface casing. A second string of surface casing may be required if the first string has not been cemented through a

sufficient series of low permeability, competent rock formations or a rapidly increasing thermal gradient or rapidly increasing formation pressures are encountered.

(e) Intermediate casing shall be required for protection against anomalous pressure zones, cave-ins, washouts, abnormal temperature zones, uncontrollable lost circulation zones or other drilling hazards. Intermediate casing strings shall be cemented solid to the surface.

(f) Production casing may be set above or through the producing or injection zone and cemented above the zones. Sufficient cement shall be used to exclude overlying formation fluids from the zone, to segregate zones and to prevent movement of fluids behind the casing into zones that contain ground water. Production casing shall either be cemented solid to the surface or lapped into intermediate casing, if installed. If the production casing is lapped into an intermediate string, the casing overlap shall be at least fifty feet, the lap shall be cemented solid and the lap shall be pressure tested to ensure the integrity of the lap.

In order to reduce casing corrosion, production casing used to produce corrosive brine reservoirs shall be of the same nominal inside diameter from the shoe of the casing to the ground surface unless waived by the chairperson.

(g) All cement used in cementing the various types of casing required herein shall contain a high temperature resistant admix, unless this cement requirement is waived by the chairperson due to the particular circumstances existing in the well or the area. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-72 Mud return temperature logging. The temperature of the return drilling mud shall be monitored continuously during drilling of the surface casing portion of the drill hole. Either a continuous temperature monitoring device shall be installed and maintained in a working condition, or the temperature shall be installed and maintained in a working condition, or the temperature shall be read manually. Return mud temperatures shall be entered into the log book after each joint of pipe has been drilled down (about every thirty feet). [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§177-5, 178-6, 182-14)

§13-183-73 Electric well logging. All wells, except observation wells, shall be logged with an induction electrical log, or other approved log from total depth to the bottom of the conductor pipe before installing casing, except in the case where air is used as the drilling medium. This requirement may vary

from area to area, depending upon the amount of subsurface geological or hydrological data available and may not be required from total depth of the well under certain conditions, subject to the approval of the chairperson. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-74 Blowout-prevention equipment. (a) Blowout-prevention equipment ("BOPE") capable of shutting-in the well during any operation shall be installed on the surface casing tested and shall be maintained ready for use at all times. BOPE pressure tests may be observed by the chairperson or his designated representative on all exploratory wells prior to drilling out the shoe of the surface casing. The decision to require and observe BOPE pressure tests on other types of wells shall be made on a well-to-well basis. The chairperson shall be contacted in advance of a scheduled pressure test to allow time for travel to the well site to witness the test.

BOPE installations shall include high temperature-rated packing units and ram rubbers if available and shall have a minimum working-pressure rating equal to or greater than the lesser of:

- (1) A pressure equal to the product of the depth of the BOPE anchor string in feet times one psi per foot;
- (2) A pressure equal to the rated burst pressure of the BOPE anchor string; or
- (3) A pressure equal to 2,000 psi.

(b) The requirements for blowout-prevention equipment shall be subject to review and modification by the chairperson. The following standards serve as guidelines for preparation of minimum blowout-prevention programs:

- (1) No BOPE is required for known shallow, low temperature, low pressure areas where down-hole water temperatures are less than one hundred degrees Celsius at depths less than five hundred feet or where temperatures and pressures are unknown and the proposed depth of drilling is less than five hundred feet.
- (2) CLASS 2M BOPE (API CLASS 2M-A or 2M-RE) is required for low pressure areas where known temperatures are above one hundred degrees Celsius at depths less than 2,000 feet, or where sub-surface temperatures and pressures are unknown and the proposed depth of drilling is less than 2,000 feet. Equipment shall include:
  - (A) An annular BOPE or pipe-ram/blind-ram BOPE with minimum working-pressure ratings of 1,000 psi installed on the surface casing so that the well can be shut-in at any time;

- (B) Hydraulic and/or manual actuating system;
  - (C) Kelly cock;
  - (D) A fill-up line installed above the BOPE;
  - (E) A kill line installed below the BOPE, leading directly to the mud pumps and fitted with a valve through which cement could be pumped if necessary; and
  - (F) A blow-down line fitted with two valves installed below the BOPE. The blow-down line shall be directed in a manner so as to permit containment of produced fluids and to minimize any safety hazard to personnel.
- (3) CLASS 3M BOPE (API CLASS 2M-RSRA or EQUIVALENT) is required for medium pressure areas where subsurface pressures are less than 1000 psi or where pressures are unknown and the proposed total depth of the well is greater than 2000 feet. Equipment shall include:
- (A) Annular BOPE and pipe-ram/blind-ram BOPE with a minimum working-pressure rating of 2,000 psi installed on the surface casing so that the well can be shut-in at any time and with a double-ram preventer having a mechanical locking device;
  - (B) A hydraulic actuating system utilizing an accumulator of sufficient capacity and a high pressure auxiliary backup system equipped with dual controls, one at the driller's station and one at least fifty feet away from the well head;
  - (C) Kelly cock and standpipe valve;
  - (D) A fill-up line installed above the BOPE;
  - (E) A kill line installed below the BOPE, leading directly to the mud pumps and fitted with a valve through which cement could be pumped if necessary; and
  - (F) A blow-down line fitted with two valves installed below the BOPE with blow-down line directed in such a manner as to permit containment of produced fluids and to minimize any safety hazard to personnel.
- (4) CLASS 1A BOPE is required in areas where dry steam is known to exist and/or formation pressures are less than hydrostatic and air is used as the drilling medium. Equipment shall include:
- (A) A rotating-head installed at the top of the BOPE
  - (B) A pipe-ram/blind-ram BOPE, with a minimum working-pressure rating of 1,000 psi, installed below the rotating-head so that the well can be shut-in at any time;
- stack;

- (C) A banjo-box steam diversion unit installed below the double-ram BOPE, fitted with a muffler capable of lowering sound emissions to within acceptable standards;
- (D) A blind-ram BOPE, with a minimum working-pressure rating of 1,000 psi, installed below the banjo-box so that the well can be shut-in while removing the rotating-head during bit changes;
- (E) A gate valve required on final casing string to be cemented back to surface, with a minimum working-pressure rating of three hundred psi, installed below the blind-ram so that the well can be shut-in after the well has been completed, prior to removal of the BOPE stack;
- (F) All ram-type BOPE shall have a hydraulic actuating system utilizing an accumulator of sufficient capacity and a high-pressure backup system, one at the driller's station and the other at least fifty feet away from the well head;
- (G) Kelly cock and standpipe valves;
- (H) A kill line installed below the BOPE, leading directly to the mud pumps and fitted with a valve through which cement could be pumped if necessary; and
- (I) A blow-down line fitted with two valves installed below the BOPE. This line shall be directed so as to minimize any safety hazard to personnel. If any portion of a well is drilled using mud, Class 2M BOPE shall be installed on the surface casing so that the well can be shut-in at any time.

[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-

14)

§13-183-75 Well completion. A well is considered to be completed thirty days after drilling operations have ceased and the well is capable of producing a geothermal resource, or thirty days after it has commenced to produce a geothermal resource, unless drilling operations are resumed before the end of the thirty-day period. For the purpose of filing well records, the time limit of sixty days begins either when the well commences production or injection, the drilling operations are suspended for more than thirty days, or the well is abandoned. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-76 Well tests. (a) The chairperson shall require the well tests or remedial work as necessary to prevent and

minimize damage to life, health, property, natural resources, geothermal resources, ground water resources, and the environment. Tests may include casing tests, cementing tests, directional tests, or equipment tests.

(b) All casing strings shall be pressure tested after cementing and before commencing any other operations on the well. Minimum casing test pressure shall be approximately one-third of the manufacturer's rated internal yield pressure; provided that the test pressure shall not be less than six hundred pounds per square inch and greater than 1500 pounds per square inch. In cases where combination strings are involved, the above test pressures shall apply to the lowest pressure-rated casing used. Test pressures shall be applied for a period of thirty minutes. If a drop of more than ten percent of the test pressure should occur, the casing or cement job shall be considered defective and corrective measures shall be taken before commencing any further operations on the well.

(c) If the cementing of any casing appears to be defective, or if the casing in any well appears to be defective or corroded or parted, or if there appears to be any underground leakage for whatever other reason which may cause or permit underground waste, the operator shall proceed with diligence to use the appropriate method or methods to eliminate the hazard. If the hazard of waste cannot be eliminated, the well shall be plugged and abandoned in accordance with a plugging program approved by the chairperson.

(d) All wells shall be tested to determine the deviation from the vertical at maximum intervals of five hundred feet or less. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

## Subchapter 9. Drilling; Modification of Well for Injection Use

§13-183-77 Injection wells. Injection wells are those wells used for disposal of geothermal waste fluids, for the augmentation of geothermal reservoir fluids, for maintenance of reservoir pressures, or for any other purpose authorized by the chairperson. New wells may be drilled or old wells may be modified for injection purposes. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-78 Permit required. Prior to modification of existing wells for injection purposes, an appropriate application for permit shall be filed with the chairperson together with filing fee, as required in §13-183-65. Modification work shall not commence until a permit has been issued by the chairperson.

[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-79 Surveillance of injection wells. (a) Surveillance of injection wells shall be necessary in order to establish that all injection effluent is confined to the intended zone of injection. When an owner or operator proposes to drill a new well or modify an existing well the owner or operator shall be required to demonstrate to the satisfaction of the chairperson that the casing has complete integrity by approved test methods.

(b) To establish the integrity of the annular cement above the shoe of the casing, the operator shall make sufficient surveys, within thirty days after injection is started into a well, to demonstrate that all the injected fluid is confined to the intended zone of injection. Surveys shall thereafter be made at least every two years, or as often as the chairperson may order. All the surveys shall be witnessed by the chairperson.

(c) After the injection well has been put into service, the chairperson may visit the well site periodically. At these times, surface conditions shall be noted and if any unsatisfactory conditions exist, the operator shall be notified of needed remedial work. If this required work is not performed within ninety days, the permit issued for the well by the chairperson shall be rescinded. If it is determined that damage is occurring, the chairperson may order that the repair work be done immediately.

(d) Injection pressures shall be recorded and compared with the pressure reported on the appropriate forms. Any discrepancies shall be rectified immediately by the operator. A graph of pressures and rates versus time shall be maintained by the operator. Reasons for anomalies shall be promptly ascertained. If these anomalies demonstrate that damage is being done, the permit issued by the chairperson may be rescinded and injection shall cease.

(e) At the discretion of the chairperson, when an injection well has been left idle for a period of two years or longer, the operator shall be informed by letter that the permit issued for use of the well for injection purposes has been rescinded. In the event the operator intends again to use the well for injection purposes, the operator shall be required to file a new application for permit and demonstrate to the satisfaction of the chairperson by means of surveys that the injected fluids will be confined to the intended zone of injection. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

## Subchapter 10. Drilling; Operation and Maintenance

§13-183-80 Well operation and maintenance. (a) All wells and their appurtenances such as well head, separators, pumps, mufflers, scrubbers, manifolds, valves, and pipelines shall be operated and maintained by the operator in good working condition in order to prevent unacceptable pollution, waste and the loss of or damage to life, health, property, natural resources, and environment. The well head and appurtenances of all wells shall meet a test pressure of at least one and a half times the calculated or known pressure of the geothermal reservoir tapped or to be tapped by the well.

(b) Periodic corrosion surveillance of any well and appurtenances may be conducted by the chairperson or authorized representative and any leakage, waste, or hazard shall be promptly corrected by the operator.

(c) The operator of any well shall notify the chairperson of any blowout, break, leak, or spill of any well or appurtenant facilities. The notification to the chairperson shall consist of a written report submitted within ten days after discovery of the incident.

(d) The chairperson shall notify the operator of any well not being operated or maintained in accordance with these rules to take whatever steps may be necessary to remedy the defect at the operator's expense within the period of time specified in the notice. If the operator fails to comply with the notice and remedy the defect within the specified period, the chairperson may do the work as maybe necessary to plug and abandon the well or put it in proper condition at the expense of the operator or the surety and the chairperson may take necessary action to enforce the penalty provided in these rules. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

#### Subchapter 11, Drilling; Abandonment of Wells

§13-183-81 Notice of intent to abandon; permit; filing fee. The operator of any well proposed to be abandoned shall file with the chairperson an application for permit to abandon, prior to the abandonment. The operator's proposed plans for abandonment shall be subject to approval and revision prior to the issuance of a permit by the chairperson. Each application to abandon a well shall be accompanied by a non-refundable filing fee of \$100. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §182-14)

§13-183-82 General requirements. (a) The operator of any well shall promptly plug and abandon any well that is deserted, not in use, is deemed not to be potentially useful, is wasting geothermal or ground water resources, or is irreparably damaged.

No well shall be plugged and abandoned until the manner and method of plugging have been approved or prescribed by the chairperson.

(b) Before any work is commenced to abandon any well, notice shall be given by the operator to the chairperson, which notice shall show the condition of the well and the proposed method of abandonment. Unless otherwise specified in the plan of operation, no well may be abandoned except as prescribed herein. The operator of a lease shall promptly plug and abandon any well that is deserted or not used or deemed useful by the board. No well capable of producing in commercial quantities may be abandoned until receipt of written approval by the chairperson. 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 chairperson. When drilling operations have been temporarily suspended drilling equipment shall not be removed from any well without taking adequate measures to close the well and protect subsurface resources. Failure of lessee to comply with any requirements under this rule shall authorize the chairperson to cause the work to be performed at the expense of lessee and the surety.

(c) Good quality, heavy drilling fluid approved by the chairperson shall be used to replace any water in the hole and to fill all portions of the hole not plugged with cement.

(d) Subsequent to plugging and abandonment operations in the hole, casing shall be cut off at least six feet below the surface of the ground, all concrete cellars and other structures shall be removed, and the surface location restored, as near as practicable, to original conditions.

(e) A history of the well shall be filed within sixty days after completion of abandonment; provided that in the case of an exploratory well the report shall be filed within six months after abandonment.

(f) Any bond or rider thereto covering the well shall remain in full force and effect until the well is properly abandoned and the surface properly restored. Written approval of the abandonment shall be obtained from the chairperson before any bond is released. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§178-3, 182-14)

§13-183-83 Cementing requirements. (a) Cement used to plug any well, except that cement or concrete used for surface plugging, shall be placed in the hole by pumping through drill pipe or tubing. The cement shall contain a high temperature resistant admix unless this requirement is waived by the chairperson the particular circumstances existing in that well or

area. All open annuli shall be filled solid with cement to the surface.

(b) One hundred lineal feet of cement shall be placed straddling the bottom of the conductor pipe and at the shoes of all casings.

(c) Cement shall be placed solidly across geothermal zones and extending one hundred lineal feet above and below the zones, whether in uncased or cased (perforated) hole, except as follows:

- (1) One hundred lineal feet of cement shall be placed straddling casing stubs and laps. If unable to enter casing stubs or laps, one hundred lineal feet of cement shall be placed above the top of the stubs or laps.
- (2) If casing is collapsed, etc., cement shall be placed solidly in geothermal zones or perforated sections of casing and extending one hundred lineal feet above the zone or perforated section by squeezing with a retainer or braden head.

(d) Fifty lineal feet of cement shall be placed above the top of casing liners.

(e) A surface plug consisting of a minimum of fifty lineal feet of neat cement or ready mix concrete shall be placed below the surface of the well.

(f) Where a well has been drilled with air, a bridge plug may be placed at the deepest cemented casing shoe and the bridge plug shall be capped with a minimum of two hundred lineal feet of cement. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§178-3, 182-14)

## Subchapter 12. Drilling; Records and Reports of Wells

§13-183-84 Well records. (a) The operator of any geothermal well shall keep, or cause to be kept, a careful and accurate log, core record, and history of the drilling of the well, including:

- (1) Lithology and depths of formations encountered;
- (2) Cores;
- (3) Water-bearing and geothermal heat-bearing strata and their depths, pressures and temperatures; and
- (4) Other well surveys and logs of temperature, chemical, radioactive, and electrical characteristics of the well.

(b) These records shall be kept within the state in the local office of the operator or his designated agent and together with all other reports of the operator, shall be subject, during business hours, to the inspection of the chairperson. The board may also require the additional data or reports relating to production or utilization of geothermal resources and by-products

as may appear to be necessary or desirable, either generally or specifically, for the prevention of waste and the optimum use of geothermal, water and other natural resources of the state.  
[Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§178-3, 182-14)

§13-183-85 Reports to be filed. Within six months after the completion of any well or completion of any deepening, redrilling, plugging, altering, or abandonment work, the operator shall file with the department of land and natural resources in Honolulu, Hawaii, the following well reports on forms provided by the department:

- (1) Drilling log and core report. The drilling log and core report shall show the lithologic characteristics and depths of formations encountered, the depths and temperatures of ground water-bearing and geothermal resources-bearing strata, and the temperatures, chemical compositions, and other chemical and physical characteristics of fluids encountered from time to time, so far as ascertained. The report shall show the depth, lithologic character and fluid content of cores obtained, so far as determined.
- (2) Well history report. The well history report shall describe in detail the chronological order on a daily basis all significant operations carried out and equipment used and shall be submitted upon completion of drilling, testing, completion, recompletion and abandonment of a well.
- (3) Well summary report. The well summary report shall show data pertinent to the condition of a well at the time of completion of work done. Well locations shown on this form shall be surveyed by a licensed surveyor.
- (4) Supplementary notice. Reports on any other operations not specifically mentioned herein which affect the previous reported status of a well shall be reported on the supplementary notice form.
- (5) All reports shall be the property of the state with the right to utilize the same.

[Eff. JUN 22 1981] (Auth: HRS §182-14)  
(Imp: HRS §§178-6, 182-14)

§13-183-86 Monthly production and injection reports to be filed. The operator of any well which is producing geothermal resources or by-products or is being used for injection purposes shall file with the chairperson on or before the thirtieth day after the end of each month a report on the amount of geothermal

resources produced, sold, and used, and the amount of fluid injected for that month as the case may be. [Eff. JUN 22 1981] (Auth: HRS §182-14) (Imp: HRS §§178-6, 182-14)

### Subchapter 13. Drilling; Environmental Protection Requirements

§13-183-87 Environmental protection. (a) Protection of the environment includes responsibility of the operator of any well to:

- (1) Conduct exploration, drilling, and development operations in a manner deemed necessary by the chairperson to provide maximum protection of the environment;
- (2) Rehabilitate disturbed lands;
- (3) Take all precautions deemed necessary by the chairperson to protect the public health and safety; and
- (4) Conduct operations in accordance with the intent and objectives of these rules and all other applicable federal, state, and county environmental legislation.

(b) Adverse environmental impacts from geothermal-related activity shall be prevented or mitigated through enforcement of these rules and of all other applicable federal, state, and local standards, and the application of existing technology. Inability to meet these environmental standards or continued violation of environmental standards by any well operator after due notification, may be construed as grounds for the chairperson to order a suspension of well operations.

(c) The operator of any well shall be responsible for monitoring readily identifiable localized environmental impacts associated with specific activities that are under the operator's control. Monitoring of environmental impacts may be conducted by the use of aerial surveys, inspections, periodic samplings, continuous records, or by other means or methods as required by the chairperson. Due to the differing natural environmental conditions among geothermal areas, the extent and frequency of monitoring activities shall be approved by the chairperson on an individual well basis. In the event the chairperson determines that the degree and adequacy of existing environmental protection rules in certain areas are insufficient, the chairperson may establish additional and more stringent requirements.

The operator of any well shall provide for acquisition of adequate environmental baseline data prior to submission of a plan for production. Techniques and standards to be used by the operator for meeting these requirements shall be subject to the approval of the chairperson.

- (d) The operator of any well shall reduce visual pollution,

where feasible, by the careful selection of sites for operations and facilities. The design and construction of facilities shall be conducted so that the facilities will blend into the natural environmental setting of the area by the appropriate use of landscaping, vegetation, compatible color schemes, and minimum profiles. Native plants or other compatible vegetation shall be used, where possible, for landscaping and revegetation.

(e) Drilling and operating plans shall be designed so that the operations will result in the least disturbance of land, water, and vegetation. Existing roads shall be used where feasible. Entry upon certain environmental fragile land areas may be either seasonally restricted or restricted to special vehicles or transportation methods which will minimize disturbance to the surface or other resources as specified by the chairperson. Plans for drilling operations shall provide for the reclamation and revegetation of all disturbed lands in a manner approved by the chairperson. Land reclamation may include preparation and seeding with prescribed wildlife food and plant cover or improved and acceptable substitutes thereof which will equal or enhance the food values for indigenous wildlife species and domesticated animals. Temporary fencing for the reclaimed areas may be required to facilitate restoration thereof.

(f) Operations shall be conducted in a manner which minimizes erosion and disturbance to natural drainage. The operator of any well shall provide adequate erosion and drainage control to prevent sediments from disturbed sites from entering water courses for soil and natural resource conservation protection.

(g) The operator of any well shall conduct all operations in a manner which provides reasonable protection of fish, wildlife, and natural habitat. The operator shall take measures necessary for the conservation of endangered and threatened species of flora and fauna.

(h) The operator of any well shall exercise due diligence in the conduct of his operations to protect and preserve significant archaeological, historical, cultural, paleontological, and unique geologic sites. Previously unknown sites discovered during any operations shall be immediately reported to the chairperson, and operations on that site shall cease until said site can be assessed for its archaeological value.

(i) The operator of any well shall comply with all applicable federal, state, and local standards with respect to air, land, water, and noise pollution, and the disposal of liquid, solid, and gaseous effluent. Immediate corrective action approved or prescribed by the chairperson shall be taken in all cases where pollution has occurred or abatement is deemed necessary. The disposal of well effluents shall be done in a

manner that does not constitute a hazard to surface or ground water resources.

(j) The operator of any well shall design, plan, and conduct all well drilling, casing and cementing operations in a manner which provides for protection of all usable ground water resources from exhaustion, depletion, waste, pollution, and salt water encroachment or the threat thereof. [Eff. JUN 22 1981]  
(Auth: HRS §182-14) (Imp: HRS §182-14)

The rules adopting chapter 183 of Title 13, Administrative Rules entitled Rules on Leasing and Drilling of Geothermal Resources were adopted on May 8, 1981 by the board of land and natural resources following a public hearing held on April 10, 13, 14 and 15, 1981, after public notice was given in the Honolulu Star Bulletin on March 21, 1981, and the Hawaii Tribune Herald, the Maui News, and the Garden Island on March 17, 1981.

This rule shall take effect ten days after filing with the office of the lieutenant governor.

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Chairperson and Member  
Board of Land and  
Natural Resources

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Member  
Board of Land and  
Natural Resources

APPROVED AS TO FORM:

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Deputy Attorney General

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Governor

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Date Filed