TO: Mr. Mike Kido (Senator T.C. Yim's Office) Room 219, Capitol
FROM: Robert T. Chuck
DATE: January 24, 1977

SUBJECT: MESSAGE:

As requested, attached is a list of people who have commented or have given testimony on the first draft, proposed geothermal rules & Regulations.

Also attached is a list of the persons whom we have sent the proposed rules & regulations.

SIGNED: ROBERT T. CHUCK

DL: dh
Attach.
MAILING LIST
PROPOSED GEOTHERMAL REGULATIONS

Mr. Gordon B. Secor
Standard Oil Co.
225 Bush Street
San Francisco, California 94104

Mr. W.L. D'Olier
V.P. Geothermal Operations
Thermal Power Co.
601 California St.
San Francisco, California 94104

Mr. Henry T. Snow
District Land Manager
Union Oil Co. of Calif.
1250 Caddington Center
P.O. Box 6854
San Rosa, Calif. 95406

Mr. Robert M. Kamins
University of Hawaii
Hawaii Geothermal Project
2424 Maile Way
Hon., HI

Mr. Edgar Craddick
Geothermal Exploration & Dev. Corp.
2828 Pau St.
Hon., HI 96819

Mr. George M. Sheets
1152 Kokohead Avenue
Honolulu, Hawaii 96816

Dr. John W. Shupe, Dir.
Hawaii Geothermal Project
University of Hawaii
2540 Dole St.
Hon., HI 96822

Mr. Mitsuo Uyehara
1026 University Ave.
Honolulu, HI

Mr. Dennis Niles
Legal Aid Society
Suites 208, 180 Kinokoe St.
Hilo, Hawaii 96720

Honda Hul O'Hana
P.O. Box 611
Pahoa, HI 96778

Pacific Business News
Diane Christensen

Dr. Doak Cox
University of Hawaii
Environmental Center
2550 Campus Road
Hon., HI

Mr. Ted G. Clause
Case, Kay, Clause & Lynch
P.O. Box 494
Hon., HI 96809

Mr. Frank Montgomery
Hawaiian Electric Co.
P.O. Box 2750
Hon., HI 96803

Mr. Hideto Kono
DPED, Attn: Gene Grabbe

Mr. Robert Stern
Energy Research & Dev. Admin.
P.O. Box 3949
Hon., HI 96812

Senator T.C. Yim
Attn: Mike Kido

Mr. Richard Marland, OEQC

Mr. Robert Johnsen
Campbell Estate
828 Fort St. Mall
Suite 500
Hon., HI 96813

Mr. Larry Cunha
Bishop Estate
519 Halekauwila St.
Hon., HI 96813

Mr. Terry H. Adamiya
Tokyu Land Dev., (Hawaii)
190 S. King St., Suite 1930
Hon., HI 96813

Mr. Carl J. Vesey
P.O. Box 8891
Hon., HI 96813
Mr. Jack McNamara  
(consultant to Calif. Geothermal Comm.)  
Room 422, Law Center  
University of Southern California  
Los Angeles, California 90007

Mr. Ed Kubota  
Department of Health  
Pollution Branch

Ms. Virginia McDonald, DPED

Mr. Chester Lao  
Honolulu BWS

Mr. Chew Lun Lau  
Department of Public Works  
City & County of Honolulu

Mr. David Anderson  
State Energy Comm.  
1111 Howe Avenue  
Sacramento, California 95825
Comments and Testimonies received on
Geothermal Rules and Regulations

*Dr. Gordon A. Macdonald
Hawaii Institute of Geophysics
University of Hawaii

*Mr. John W. Shupe
Hawaii Geothermal Project
University of Hawaii
2540 Dole St.
Honolulu, HI 96822

Mr. James Kumagai
Department of Health
State of Hawaii

Mr. Dave Anderson
State Energy Commission
1111 Howe Avenue
Sacramento, Calif 95825

Mr. Ted G. Clause
Case, Kay, Clause & Lynch
P.O. Box 494
Honolulu, HI 96809

Mr. Frank Montgomery
Hawaiian Electric Co.
P.O. Box 2750
Honolulu, HI 96803

Mr. Henry T. Snow
Union Oil Co of Calif.
P.O. Box 6854
Santa Rosa, California 95406

Mr. W.L. D'Olier
Thermal Power Company
601 California St.
San Francisco, California 94108

Mr. Francis R. Montgomery
Hawaiian Electric Co.
P.O. Box 2750
Honolulu, HI 96803

Mr. Robert M. Kamins
University of Hawaii
Geothermal Project
2424 Malle Way
Honolulu, Hawaii 96822

Mr. Edgar Craddick
Geothermal Exploration & Dev. Corp.
2829 Paa Street
Honolulu, HI 96819

Kazuyoshi Hayashida
Dept. of Public Works
City & County of Honolulu
Honolulu, HI

Mr. Edward Hirata
Board of Water Supply
City & County of Honolulu
Honolulu, HI

Dr. Doak Cox
Environmental Center
University of Hawaii
2550 Campus Road
Honolulu, Hawaii

Mr. George M. Sheets
Geothermal Exploration Assoc.
1152 Kokohead Avenue
Honolulu, Hawaii 96816

Clarence W. Garcia
County of Hawaii
Hilo, Hawaii

James A. Warren
P.O. Box 283
Keauau, Hawaii

Arthur Levin
1626 Wahaluenue Ave
Hilo, Hawaii

*Oral comments
Malanee Solomon  
P.O. Box 219  
Kohala, Hawaii

Beverly M. Hookano  
Star Route 20  
Pahoa, Hawaii

William Whitmarsh  
260 E. Kawili St.  
Hilo, Hawaii

Dorlin Kaahili  
230 Kapiolani St. #208  
Hilo, Hawaii

Mae E. Mull  
P.O. Box 275  
Volcano, Hawaii

Alika Cooper  
Congress of the Hawaiian People  
163 Kailuani St.  
Hilo, Hawaii

Vern Yamanaka  
116 Kam Avenue  
Hilo, Hawaii

Edwina Akaka  
1513 Walluku Dr  
Hilo, Hawaii

Jennifer Perry  
P.O. Box 537  
Hilo, Hawaii

Stephen Morse  
P.O. Box 1231  
Pahoa, Hawaii

Helen Baldwin  
453-C Wailuaenuue Ave  
Hilo, Hawaii

Heide Meeker  
605 W. Lanikaula St.  
Hilo, Hawaii

Samuel Hookano  
Star Route 20-H  
Pahoa, Hawaii
January 27, 1977

Mr. John P. Keppeler
Managing Director
Office of the Mayor
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Keppeler:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

We enclose for your information and comments a copy of the second draft of our proposed geothermal regulations. This second draft not only provides for the leasing of geothermal resources but also the regulation of drilling for geothermal resources.

If you have any specific or technical questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone 548-7643.

Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

RTC; DL; dh
Enc.
January 27, 1977

Mr. Clarence Garcia
Director
Department of Research
and Development
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Garcia:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

We enclose for your information and comments six copies of the second draft of our proposed geothermal regulations. This second draft not only provides for the leasing of geothermal resources but also the regulation of drilling for geothermal resources.

If you have any specific or technical questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone 548-7643.

Very truly yours,

CHRISTOPHER COBBS
Chairman of the Board

RTC: DL: dh
Enc.
Mineral Regulations

Please send a copy of your prelim. mineral regulations to Clarence Garcia, Head of County Research and Development Dept., County of Hawaii.

Also, a copy to Managing Director Keppler.

Please try to “speak base” with them.

PERSON RECEIVING MEMO—RETAIN THIS COPY FOR YOUR RECORD.
SECOND DRAFT
PROPOSED GEOTHERMAL REGULATIONS

Mr. Gordon B. Secor
Standard Oil Co.
225 Bush Street
San Francisco, California 94104

Mr. W.L. D'Olier
V.P. Geothermal Operations
Thermal Power Co.
601 California Street
San Francisco, California 94108

Mr. Henry T. Snow
District Land Manager
Union Oil Co. of Calif.
1250 Caddington Center
P.O. Box 6854
Santa Rosa, California 95406

Robert M. Kamins
University of Hawaii
Hawaii Geothermal Project
Porteus Hall 507
2424 Maile Way
Hon., HI

Edgar Craddick
Geothermal Exploration & Development Corp.
2828 Paa St.
Hon., Hawaii 96819

George M. Sheets
1152 Kokohead Avenue
Honolulu, Hawaii 96816

Dr. John W. Shupe, Director
Hawaii Geothermal Project
University of Hawaii
2540 Dole St.
Hon., HI 96822

2nd draft sent with transmittal letter on Nov. 16,
Mailing List

1/18/77 - Environmental Center
University of Hawaii
2550 Campus Road
Honolulu, HI 96822

1/20/77 - Jack McNamara
Room 422, Law Center
UCLA School of Law
Los Angeles, CA 90095

2/13/77 - Marvin Sillin
Amec Inc., 700 Bishop St.
Honolulu, HI 96813

(Copies to:
R. MacArthur
C. Brunelle
J.W.

Comments:

- Please review the proposed regulations.
- Suggest adding a section on environmental impact.
- Request a meeting to discuss further.
November 4, 1976

MEMORANDUM

TO: Mr. Christopher Cobb

FROM: Robert T. Chuck

SUBJECT: Second Draft of Proposed Geothermal Regulations

Attached is the second draft of proposed Geothermal Regulations based on our review and consideration of testimony and comments received on the first draft as a result of public hearings concluded in May, 1976.

Substantive comments received as recently as October 8 from experienced geothermal operators such as Standard Oil Co., Union Oil Co., and Thermal Power Co. have indicated that the first draft regulations, if adopted, would have seriously discouraged the leasing, exploration and development of geothermal resources on State and reserved lands in Hawaii.

We have, therefore, revised the first draft as "Part I - Leasing of Geothermal Resources" in the second draft which is attached herewith. It has been recognized that Chapter 182, HRS, a "hard-rock" mining law, presents some limitations for providing the legal basis for geothermal resources leasing procedures normally used by other states and the Federal government. However, what we have tried to do in the second draft is to write a set of geothermal regulations as consistent as possible with a policy that encourages prudent geothermal resources development in Hawaii and with good industry practices, but within the framework of Chapter 182.

The August 25, 1976 memorandum from Eric Marn, Deputy Attorney General to you recommended that the Department may regulate the exploration, development, and extraction of geothermal resources on both government and private lands. Therefore, we have added to the second draft of the proposed geothermal regulations, "Part II - Drilling for Geothermal Resources" in order to provide for the regulation of all geothermal drilling in the State.

Attached for your signature are transmittal letters for the second draft.

ROBERT T. CHUCK

DL: dh

Attach.
November 12, 1976

Mr. W. L. D'Olier
V.P. Geothermal Operations
Thermal Power Co.
601 California Street
San Francisco, California 94108

Dear Mr. D'Olier:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first draft of our proposed geothermal regulations for Hawaii, we enclose for your review and comment the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

What we have tried to achieve in the second draft is to write a set of geothermal regulations as consistent as possible with a policy that encourages prudent geothermal exploration and development in Hawaii and with good industry practices, but within the framework of Chapter 182, entitled "Reservation and Disposition of Government Mineral Rights", Chapter 178, entilted "Ground Water Use", and Chapter 177, entitled "Wells, Generally" of the Hawaii Revised Statutes.

You will note that the second draft not only provides for the leasing of geothermal resources, as in the first draft, but also provides for the regulation of all drilling for geothermal resources in the State, whether publicly or privately owned.

As an experienced geothermal company, we would appreciate very much your review and comments on the second draft to assist us in preparing for final adoption the best set of geothermal regulations possible under the existing pertinent Statutes of Hawaii.

If you have any specific or technical questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone (808) 548-7643.

Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
Chapters 182, 177, 178, HRS
November 12, 1976

Mr. Gordon B. Secor
Standard Oil Company
225 Bush Street
San Francisco, California 94104

Dear Mr. Secor:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first draft of our proposed geothermal regulations for Hawaii, we enclose for your review and comment the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

What we have tried to achieve in the second draft is to write a set of geothermal regulations as consistent as possible with a policy that encourages prudent geothermal exploration and development in Hawaii and with good industry practices, but within the framework of Chapter 182, entitled "Reservation and Disposition of Government Mineral Rights", Chapter 178, entitled "Ground Water Use", and Chapter 177, entitled "Wells, Generally" of the Hawaii Revised Statutes.

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If you have any specific or technical questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone (808) 548-7643.

Very truly yours,

Enc: Draft Regulations
Chapters 182, 177, 178, HRS

CHRISTOPHER COBB
Chairman of the Board
November 12, 1976

Mr. Henry T. Snow
District Land Manager
Union Oil Co. of California
1250 Caddington Center
P.O. Box 6854
Santa Rosa, California 95406

Dear Mr. Snow:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first
draft of our proposed geothermal regulations for Hawaii, we enclose for your review
and comment the second draft of geothermal regulations which has taken into
consideration the comments that were made on the first draft.

What we have tried to achieve in the second draft is to write a set of
geothermal regulations as consistent as possible with a policy that encourages
prudent geothermal exploration and development in Hawaii and with good industry
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Use", and Chapter 177, entitled "Wells, Generally" of the Hawaii Revised Statutes.

You will note that the second draft not only provides for the leasing of
geothermal resources, as in the first draft, but also provides for the regulation
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owned.

As an experienced geothermal company, we would appreciate very much
your review and comments on the second draft to assist us in preparing for final
adoption the best set of geothermal regulations possible under the existing
pertinent Statutes of Hawaii.

If you have any specific or technical questions concerning the draft regulations,
please feel free to call Dan Lum, Division of Water and Land Development,
phone (808) 548-7643.

Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
Chapters 182, 177, 178, HRS
Joint venture set to develop geothermal field for Big Isle

Thermal Power Co. of California (TPC) has signed a joint venture agreement with Honolulu-based Geothermal Exploration & Development Co. (Gedco) to develop a geothermal field on the Big Island.

A geothermal field could become a major electric power resource for Hawaii County.

TPC Vice President Claire J. Carlson said TPC will act as the operator in the joint venture but has no plans to begin drilling until geothermal lease rights have been signed with fee owners in the Puna area.

That could take some time since landowners on the Big Island are reportedly unwilling to lease the joint-venture drilling rights until the state Department of Land and Natural Resources publishes drilling regulations sometime next year.

TPC did the first geothermal drilling in California's Imperial Valley and was one of the first developers of the well-known Geysers geothermal field in Northern California.

The firm is currently a joint venture partner with Union Oil of California in the development of The Geysers.

TCP was purchased by Natomas Co. in 1974. Natomas' major income is derived from its oil drilling operations in Indonesia, where it has a production sharing contract with the government-owned Pertamina Oil Co.

Gedco has purchased 20 acres of land in fee and leased the geothermal development rights to several hundred more acres in the Puna area.

But attempts to lease additional development rights primarily from the Lyman Trust and the Bishop Estate have been unsuccessful.

Well-informed sources have said it will be difficult for any company to negotiate for geothermal leases until the DLNR publishes regulations governing geothermal drilling in the state.

Act 241, passed in 1974, classifies Hawaii's geothermal resources as mineral rights. The same law requires DLNR to draft regulations governing leasing of state land for geothermal drilling and the operation of geothermal wells throughout the state.

Two firms to joint venture geothermal power project

December 27, 1976

(Continued from page 1)

But additional public comments on the regulations scheduled once open comments have been received. Public hearings could begin in February, March, he said.

Lum said the hearing no bearing on a private owner's right to geothermal drilling rights on his property—but the regulations will govern the development of the resource.
December 8, 1976

Mr. Henry T. Snow
District Land Manager
Union Oil Co. of California
1250 Caddington Center
P.O. Box 6854
Santa Rosa, California 95406

Dear Mr. Snow:

Proposed Regulations on Leasing of Geothermal Resources

We enclose for your information and comments a copy of the second draft of our proposed geothermal regulations. This second draft not only provides for the leasing of geothermal resources but also the regulation of drilling for geothermal resources.

If you have any specific or technical questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone (808) 548-7643.

Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

RTC: DL: db
Enc. Draft Regulations
December 8, 1976

Mr. W. L. D'Olier
V.P. Geothermal Operations
Thermal Power Co.
601 California Street
San Francisco, California 94108

Dear Mr. D'Olier:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

We enclose for your information and comments a copy of the second draft of our proposed geothermal regulations. This second draft not only provides for the leasing of geothermal resources but also the regulation of drilling for geothermal resources.

If you have any specific or technical questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone (808) 548-7643.

Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

RTC: DL: dh
Enc. Draft Regulations
December 8, 1976

Mr. Gordon B. Secor  
Standard Oil Company  
225 Bush Street  
San Francisco, California 94104

Dear Mr. Secor:

Proposed Regulations on Leasing of Geothermal Resources  
and Drilling for Geothermal Resources in Hawaii

We enclose for your information and comments a copy of the second draft of our proposed geothermal regulations. This second draft not only provides for the leasing of geothermal resources but also the regulation of drilling for geothermal resources.

If you have any specific or technical questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone (808) 548-7643.

Very truly yours,

CHRISTOPHER COBB  
Chairman of the Board

RTC: DL: dh  
Enc. Draft Regulations
December 7, 1976

Mr. Dennis Niles  
Supervising Attorney  
Legal Aid Society of Hawaii  
180 Kinoole Street, Suite 208  
Hilo, Hawaii 96720

Dear Mr. Niles:

    Under separate cover we are pleased to send you and Puna Hui O'Hana, as requested, a copy of the second draft of proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii.

Very truly yours,

CHRISTOPHER COBB  
Chairman of the Board

RTC: DL: dh  
cc: Puna Hui O'Hana
November 26, 1976

Mr. Chris Cobb
Director, Department of Land & Natural Resources
State Building, 25 Aupuni St.
Hilo, Hawaii, 96720

Re: Exploitation of Geothermal Energy on the Island of Hawaii

Dear Mr. Cobb:

Thank you for your letter of November 8, 1976. Would you kindly provide this office and Puna Hui O'Hana with copies of the amended regulations concerning the exploration and development of geothermal power prepared by your staff. I would also request that you provide this office with advance notice of the intention of the Board of Land and Natural Resources to consider at a public meeting or otherwise the granting of any lease relative to the exploration or development of geothermal resources in the Puna areas prior to the adoption of the proposed regulations.

Your anticipated cooperation is sincerely appreciated.

Very truly yours,

DENNIS NILES
Supervising Attorney

cc: Mr. Peter Hauanio
Chairman of the Board
PUNA HUI O'HANA
P. O. Box 611
Pahoa, Hawaii 96778
November 16, 1976

Mr. Dan Lum
Department of Land &
Natural Resources
1151 Punchbowl Street
Honolulu, Hawaii

Dear Mr. Lum:

Would you please send me a copy of the latest draft of proposed rules and regulations for geothermal energy development.

Mahalo,

Robert Stern
ERDA
Information Specialist

RS:rl
November 8, 1976

Mr. Dennis Niles  
Supervising Attorney  
Legal Aid Society of Hawaii  
180 Kinoole Street, Suite 208  
Hilo, Hawaii 96720  

Dear Mr. Niles:

With reference to your October 21, 1976 letter, the draft of the proposed geothermal regulations has been redrafted by staff based on comments received at the public hearings held. It is expected that the redrafted geothermal regulations will be submitted to the Attorney General's office for their review and comments on or about November 12, 1976. We will have to await the results of their review before we consider proceeding with the adoption of the proposed geothermal regulations. Persons who attended the public hearings and all other interested parties will be kept informed and sent a copy of any redrafted regulations to be presented to and considered by the Board for adoption.

It is not known at this time whether or not the Board contemplates the granting of any leases relative to the exploration or development of geothermal resources in the Puna area prior to the adoption of the proposed geothermal regulations.

Very truly yours,

[Signature]

Chairman of the Board
Dear Mr. Cobb:

Puna Hui Ohana has sought the assistance of this office concerning the investigation and development of geothermal power as a potential source of energy for the people of Hawaii. I am writing to inquire as to the progress of the rules that will be proposed to the Governor by the Board of Land and Natural Resources for the regulation of geothermal exploration, mining and leasing on state and reserve lands in Hawaii. Would you kindly advise me when you expect the rules to be proposed to the Governor in final form, and whether the final form differs from that of the original draft. If there is a difference, would you please provide me a copy of the final draft of the proposed rules for review by my clients. I would also request that you inform me at your earliest convenience whether the Board intends to grant any leases relative to the exploration or development of geothermal power in the Puna area prior to the Governor's approval of its proposed rules.

Finally, please be advised that Mr. Steve Morse of Puna, Hawaii, testified concerning the proposed rules and regulations on behalf of himself and the Hawaiian Coalition of Native Claims and desires a written statement of the Board's disposition of his comments as contemplated by Section 91-3(a)(2) of the Hawaii Revised Statutes, as amended.

Should you have any questions concerning the foregoing, please do not hesitate to contact me. I look forward to hearing from you.

Sincerely yours,

[Signature]

DENNIS NILES
Supervising Attorney

DN/cf
(good. I down
Shine and
225 Blvd. St.
S.F.
CA.
Omeprazol Inc.
681 California St.
S.F. 94108

Henry T. John
President and I.
1975 The Board of
1250 Caddell Blvd.
P.O. Box 6356
Santa Rosa. CA. 95406
November 4, 1976

MEMORANDUM

TO: Mr. Ronald Amemiya, Attorney General
Attention: Mr. Johnson Wong, Deputy Attorney General
Transportation/Land Division
FROM: Christopher Cobb
SUBJECT: Second Draft of Proposed Geothermal Regulations

Attached is the second draft of proposed Geothermal Regulations based on our review and consideration of testimony and comments received on the first draft as a result of public hearings concluded in May, 1976.

Substantive comments received as recently as October 8 from experienced geothermal operators such as Standard Oil Co., Union Oil Co., and Thermal Power Co. have indicated that the first draft regulations, if adopted, would have seriously discouraged the leasing, exploration, and development of geothermal resources on State and reserved lands in Hawaii.

We have, therefore, revised the first draft as "Part I - Leasing of Geothermal Resources" in the second draft which is attached herewith. What we have tried to do in the second draft is to write a set of geothermal regulations as consistent as possible with a policy that encourages prudent geothermal resources development in Hawaii and with good industry practices, but within the framework of Chapter 182.

The August 25, 1976 memorandum from Eric Marn, Deputy Attorney General recommended that the Department may regulate the exploration, development, and extraction of geothermal resources on both government and private lands. Therefore, we have added to the second draft of the proposed geothermal regulations, "Part II - Drilling for Geothermal Resources" in order to provide for the regulation of all geothermal drilling in the State.

We would appreciate your approval of the second draft at the earliest possible.

CHRISTOPHER COBB
Chairman of the Board
November 4, 1976

MEMORANDUM

TO: Mr. Christopher Cobb
FROM: Robert T. Chuck
SUBJECT: Second Draft of Proposed Geothermal Regulations

Attached is the second draft of proposed Geothermal Regulations based on our review and consideration of testimony and comments received on the first draft as a result of public hearings concluded in May, 1976.

Substantive comments received as recently as October 8 from experienced geothermal operators such as Standard Oil Co., Union Oil Co., and Thermal Power Co. have indicated that the first draft regulations, if adopted, would have seriously discouraged the leasing, exploration and development of geothermal resources on State and reserved lands in Hawaii.

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Attached for your signature are transmittal letters for the second draft.

ROBERT T. CHUCK

DL: dh
Attach.
November 12, 1976

Mr. Robert Johnsen
Campbell Estate
828 Fort Street Mall
Suite 500
Honolulu, Hawaii 96813

Dear Mr. Johnsen:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest we enclose the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

What we have tried to achieve in the second draft is to write a set of geothermal regulations as consistent as possible with a policy that encourages prudent geothermal exploration and development in Hawaii and with good industry practices, but within the framework of Chapter 182, entitled "Reservation and Disposition of Government Mineral Rights", Chapter 178, entitled "Ground Water Use", and Chapter 177, entitled "Wells, Generally" of the Hawaii Revised Statutes.

You will note that the second draft not only provides for the leasing of geothermal resources, as in the first draft, but also provides for the regulation of all drilling for geothermal resources in the State, whether publicly or privately owned.

If you have any questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone 548-7643.

Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Mr. Richard Marland
Director, Office of Environmental Quality Control
State of Hawaii
Honolulu, Hawaii

Dear Dr. Marland:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest we enclose the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

What we have tried to achieve in the second draft is to write a set of geothermal regulations as consistent as possible with a policy that encourages prudent geothermal exploration and development in Hawaii and with good industry practices, but within the framework of Chapter 182, entitled "Reservation and Disposition of Government Mineral Rights", Chapter 178, entitled "Ground Water Use", and Chapter 177, entitled "Wells, Generally" of the Hawaii Revised Statutes.

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If you have any questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone 548-7643.

Very truly yours,

Christopher Cobb
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Senator T.C. Yim
State Capitol, Room 219
Honolulu, Hawaii

Attention: Mr. Mike Kido

Dear Senator Yim:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest we enclose the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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If you have any questions concerning the draft regulations, please feel free to call Dan Lum, Division of Water and Land Development, phone 548-7643.

Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76.
November 12, 1976

Mr. Robert Stern
Energy Research & Development
Administration
P.O. Box 3949
Honolulu, Hawaii 96812

Dear Mr. Stern:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest we enclose the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Mr. Larry Cunha
Bishop Estate
519 Halekauwila Street
Honolulu, Hawaii 96813

Dear Mr. Cunha:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest we enclose the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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Very truly yours,

Christopher Cobb
Chairman of the Board

Enc: Draft Regulations
     AG Memo, 8/25/76
November 12, 1976

Mr. Robert M. Kamins
Hawaii Geothermal Project
University of Hawaii
2424 Mail Way, Porteus Hall 507
Honolulu, Hawaii

Dear Mr. Kamins:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first
draft of our proposed geothermal regulations for Hawaii, we enclose for your review
and comment the second draft of geothermal regulations which has taken into
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We would appreciate very much your review and comments on the second
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lations possible under the existing pertinent statutes of Hawaii.

If you have any specific or technical questions concerning the draft regula-
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phone (808) 548-7643.

Very truly yours,

Christopher Cobb
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Mr. Edgar Craddick
Geothermal Exploration & Development Corp.
2828 Paa Street
Honolulu, Hawaii 96819

Dear Mr. Craddick:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first draft of our proposed geothermal regulations for Hawaii, we enclose for your review and comment the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Mr. George M. Sheets  
1152 Kokohead Avenue  
Honolulu, Hawaii 96816  

Dear Mr. Sheets:

Proposed Regulations on Leasing of Geothermal Resources  
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first  
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CHRISTOPHER COBB  
Chairman of the Board

Enc: Draft Regulations  
AG Memo, 8/25/76
November 12, 1976

Dr. John W. Shupe, Director
Hawaii Geothermal Project
University of Hawaii
2540 Dole Street
Honolulu, Hawaii 96822

Dear Dr. Shupe:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first
draft of our proposed geothermal regulations for Hawaii, we enclose for your review
and comment the second draft of geothermal regulations which has taken into
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phone 548-7643.

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CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Dr. Doak Cox, Director
Environmental Center
University of Hawaii
2550 Campus Road, Crawford 317
Honolulu, Hawaii

Dear Dr. Cox:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first draft of our proposed geothermal regulations for Hawaii, we enclose for your review and comment the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Mr. Ted G. Clause
Case, Kay, Clause & Lynch
P.O. Box 494
Honolulu, Hawaii 96809

Dear Mr. Clause:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first draft of our proposed geothermal regulations for Hawaii, we enclose for your review and comment the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Mr. Hideto Kono, Director
Department of Planning & Economic Development
State of Hawaii
Honolulu, Hawaii

Dear Mr. Kono:

Proposed Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first draft of our proposed geothermal regulations for Hawaii, we enclose for your review and comment the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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Very truly yours,

CHRISTOPHER COBB
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
November 12, 1976

Mr. Frank Montgomery
Hawaiian Electric Co.
P.O. Box 2750
Honolulu, Hawaii 96803

Dear Mr. Montgomery:

Proposed Regulations on Leasing of Geothermal Resources
and Drilling for Geothermal Resources in Hawaii

Because of your expressed interest and as one of the reviewers of the first draft of our proposed geothermal regulations for Hawaii, we enclose for your review and comment the second draft of geothermal regulations which has taken into consideration the comments that were made on the first draft.

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Very truly yours,

Christopher Cobb
Chairman of the Board

Enc: Draft Regulations
AG Memo, 8/25/76
MEMORANDUM

TO: Christopher Cobb, Chairman
Board of Land and Natural Resources

FROM: Eric Y. Marn, Deputy Attorney General

SUBJECT: Geothermal Resources

August 25, 1976

Recently, with the successful harnessing of geothermal energy on the Big Island, an interest has been expressed by several private parties with respect to geothermal exploration and mining. Their attorney, George Sheets, seeks a determination as to the State's position as to the State's claim of ownership and interest with regard to geothermal resources mined on private land.

This memorandum is directed toward the clarification of the State's position in response to Mr. Sheet's inquiry, and a recommendation to the Department of Land and Natural Resources to formulate regulations pursuant to Chapters 183 and 91, Hawaii Revised Statutes.

I. OWNERSHIP OF GEOTHERMAL RESOURCES

Research was conducted on the question of whether the State of Hawaii could assert a claim to the geothermal resources beneath lands granted to private persons without mineral reservations to the State. Our research indicates that up to the Civil Code of 1859, the King could not grant away mineral rights when lands were given to private persons. This restriction was explicitly stated in the law of 1856, entitled, "An Act to Organize the Executive Departments of the Hawaiian Lands, Section IV". However, from 1859 to
1963, the mineral rights reservations was dropped; there was no express repeal of the reservation but rather was the apparent result of oversight. However, in the case of In Re Land Title of Robinson, 49 Haw. 429 (1966), our court held that the change in the law was a repeal of the mineral rights clause.

Thus, it would appear that unless a reservation was made in an award granted between 1859 and 1963, the mineral rights would not be explicitly reserved to the State.

In conclusion, then, it would appear that any grant conveyed between 1859 and 1963, which did not contain a mineral reservation to the State, transferred the mineral rights to the Grantee.

II. REGULATION OF GEOTHERMAL RESOURCES

The next question is whether the State can reasonably regulate the exploration and development of geothermal resources on private lands. The controlling statute would be Chapter 182, Hawaii Revised Statutes, which provides for the regulation of all mining operations for the excavation, extraction, removal of minerals and development of all geothermal resources.

Section 182-1(7) reads as follows:

"'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 of 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."

The legislative prerogative would seem to be reconcilable with the holding in the case of City Mill Co. v. Honolulu Sewer and Water Commission, 30 Haw. 912 (1929), by analogy. In the City Mill case, the government attempted to prohibit the building of a well to tap underground water reservoirs under a statute designed
to regulate the tapping of the reservoir. The Court held that the State could not prohibit such drilling as the water belonged to the landholder, but that the State could regulate such drilling. The bases for the Court's decision to allow regulation was that while the private owner owned the water, the reservoir (located below the surface of the land) extended beyond the private owners' property line and was thus owned in part by adjoining landowners whose lands lay above the water (including the State). Thus, the property owner could only tap the reservoir up to an amount so as to not to deplete the resource owned by adjoining landowners.

By analogy, the geothermal resources, while a mineral, would seem to be exactly like the water reservoir mentioned in the City Mill case in that it was owned by many landowners, including the State, and capable of being depleted. Thus, the State, to protect such resource from being depleted, pursuant to the State's police power, should be able to regulate the tapping of the resource on private land.

Reading Section 182-1(1), Section 182-1(7) and Section 182-14, Hawaii Revised Statutes, the State is specifically allowed to regulate geothermal resources in order to protect the interest of the general public in geothermal resources. Such regulation would not be depriving a private landowner of property without due process of law. (See 37 ALR 2d 434 and 78 ALR 834).

In conclusion, the State may regulate the exploration, development, and extraction of geothermal resources from within the State by any individual or corporation, pursuant to Chapter 182, Hawaii Revised Statutes. Said regulations would apply to both government lands and private lands.

III. RECOMMENDATION

It is the position of this office that the State may regulate the exploration and development of geothermal resources, and that such regulatory responsibility is vested in the Board of Land and Natural Resources.
It is the recommendation of this office that the Department of Land and Natural Resources formulate policies and procedures, pursuant to Chapter 182 and Chapter 91 (Administrative Procedure Act), Hawaii Revised Statutes, post haste.

ERIC Y. MARU
Deputy Attorney General

APPROVED:

RONALD Y. AMEMIYA
Attorney General

cc: George Sheets, Esq.


Chapter 182

Reserve and Disposition of Government Mineral Rights

§182:1 Definitions. In this chapter, if not inconsistent with the text:

(1) "Minerals" means any of all of the oil, gas, coal, phosphate, sodium, sulphur, iron, titanium, gold, silver, bauxite, bauxitic clay, diaspore, boehmite, kahite, gibbsite, alumina, all ores of aluminum and, without limitation therein, all other mineral substances and ore deposits, whether solid, gaseous, liquid, or under the land; but does not include sand, black gravel, and other materials suitable for use and used in road construction.

(2) "Board" means board of land and natural resources.

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

(4) "State lands" includes all public and other lands owned or in possession, use and control of the then Territory of Hawaii or the State of Hawaii or any of its agencies and this chapter shall apply thereto.

(5) "Occupier" means any person entitled to the possession of land under a certificate of occupation, a right of purchase lease, a cash purchase agreement, and under a deed, patent, or permit, and any person entitled to possession under a general lease, and also means and includes the assignee of any one of the above.

(6) "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, lock-out, difference of workmen, any cause which prevents economic mining of the lease, or any other cause beyond the reasonable control of the party affected, whether or not the nature or character hereinabove specifically enumerated.

(7) "Mining operations" means the process of excavation, extraction, and removal of minerals from the ground, design engineering, other engineering, erection of transportation facilities and port facilities, erection of necessary plants, other necessary operations or development approved by the board and including or connected with the actual extraction of minerals.

§182:2 Mineral rights reserved to the State. (a) All minerals in, on or under state lands or lands which hereafter become state lands are reserved to the State; provided, that the board of land and natural resources may release, cancel, or waive the reservation whenever it deems the land used, other than mining, is of greater benefit to the State as provided for in section 182:4. Such minerals are reserved from sale or lease except as provided in this chapter. A purchaser or lessee of any such lands shall acquire no right, title, or interest in or to the minerals. The right of the purchaser or lessee to be given an interest in the possession and use of all the minerals and to the conditions and limitations prescribed by law providing for the State and persons authorized by it to prospect for, mine, and remove the minerals, and to occupy and use so much of the surface of the land as may be required for all purposes reasonably extending to the mining and removal of the minerals therewithout by any means whatsoever.

(b) Subject to Subsection (a), all land patents, leases, grants, or other conveyance of state lands shall be subject to, and contain a reservation to the State of all the minerals, and shall also contain a reservation to the State, and persons authorized by it, of the right to prospect for, mine, and remove the minerals by deep mining, strip mining, drilling, and any other means whatever, and to occupy and use so much of the surface as may be required therefor. [H. 1963, c. 11, pt. of §1; Supp. §99A-A-1]

§182:3 Bond compensation to occupier. (a) Every lessee of a mining lease granted under this chapter and every assignee thereof shall file with the board of land and natural resources a bond, in a form and in an amount approved by the board, payable to the State and which shall be conditioned upon the faithful performance by the lessee of all the requirements of this chapter and of the mining lease, and also conditioned upon the full payment by the lessee of all damages suffered by the occupiers hereunder mentioned. If the State sells or leases its mineral rights on land which it or its predecessors in interest have reserved, or on which it or predecessor in interest has reserved, or to the surface or condition of its land caused by any mining or other incidental operations, including strip mining, drilling, and any other means whatever, and to occupy and use so much of the surface as may be required therefor, the lessee shall be required to the full extent of the damages caused by the mining operations of the lessee to bond the occupier for any claim or damage suffered by the occupier on account of damages caused by the mining operations of the lessee to bond the occupier for any claim or damages suffered by the occupier on account of damages so caused.

(b) Nothing herein shall be construed to prevent the occupier from demanding and receiving rentals from the lessee of the mining lease or to forbid and prevent the occupier and the lessee from agreeing upon the amount of damages and the amount of rentals to be paid as a result of the mining lease determined by arbitration with the successful bidder. In such event, the occupier shall notify the successful bidder of his election to arbitrate, and the arbitration shall proceed in accordance with chapter 65B. The arbitrators in fixing the amount of damages to be paid to the occupier shall award him the amount which is in their judgment shall fairly compensate the occupier for the damages he has suffered to his crops or improvements or to the surface or condition of his land caused by the mining or other incidental operations, including exploratory work, and a reasonable rental for the use of the surface. [L. 1963, c. 11, pt. of §1; Supp. §99A-A-3]

§182:4 Mining leases on state lands. If any mineral is discovered or known to exist on state lands, any interested person may notify the board of land and natural resources of his desire to apply for a mining lease. The notice shall be accompanied by a fee of $500 together with a description of the land desired to be leased and the minerals involved and such information and maps as the board by regulation may prescribe. As soon as practicable thereafter the board shall cause a notice to be published in a newspaper of general circulation in the county where the lands are located, at least once in each of three successive weeks, setting forth the description of the land, and the minerals desired to be leased by the board; may hold the public auction of the mining lease within six months from the date of the first publication of such notice or such further time as may be reasonably necessary. Whether or not the state land sought to be auctioned is then being utilized or put to some productive use, the board, after due notice of public hearing to all parties in interest, within six weeks from the date of the first publication of notice or such further time as may be reasonably necessary, shall determine whether the proposed mining operation or the existing or reasonably foreseeable future use of the land would be of greater benefit to the State. If the board determines that the existing or reasonably foreseeable future use would be of greater benefit to the State than the proposed mining use of the land, it shall disapprove the application for a mining lease of the land without putting the land to auction. The board shall determine the area to be offered for lease and, after due notice of public hearing to all parties in interest, may modify the boundaries of the land areas. At least thirty days prior to the holding of any public auction, the board shall cause a notice to be published in a newspaper of general circulation in the county at least once in each of three successive weeks, setting forth the description of the land, the minerals to be leased, the time and place of the auction. Bidders at the public auction shall bid on the amount of annual rental to be paid for the term of the mining lease based on an open price fixed by the board. [L. 1963, c. 11, pt. of §1; Supp. §99A-A-1]

§182:5 Mining leases on reserved lands. If any mineral is discovered or known to exist on reserved lands, any interested person may notify the board of land and natural resources of his desire to apply for a mining lease. The notice shall be accompanied by a fee of $500 together with a description of the land desired to be leased and the minerals involved and such information and maps as the board may require. The board may grant a mining lease on reserved lands in accordance with section 182:4, or the board may, by the vote of two-thirds of its voting members, without public auction, grant a mining lease on reserved lands to the occupier thereof. Such a mining lease may be granted to a person other than the occupier if the occupier has assigned his rights to apply for a mining lease to another person, or if by such an assignment such an aggrieved may be granted a mining lease. If the occupier, or his successor in interest, fails to file with the board a bond within six months from the date of notice from the board of a finding by the board that it is in the public interest that the minerals on the reserved lands be mined, a mining lease shall be granted under section 182:4; provided that 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 exploit minerals reserved to the State. [L. 1963, c. 11, pt. of §1; Supp. §99A-A-3]

§182:6 Exploration. Any person wishing to conduct exploration on such state lands shall apply to the board of land and natural resources, within 90 days from the date of completion of the exploration, for an exploration permit. No exploration permit shall be granted without the board's approval. Upon the expiration of the exploration permit, the drill logs and the results of the surveys resulting from the exploration shall be turned over to the board and kept confidential by the board.
person shall not make application for a mining lease of the lands within a period of six months from the date the information is turned over to the board, the board in its discretion need not keep the information confidential. [L. 1963, c. 1, pt. of §1, Supp. §99A-6]

$182-7 Lease. Prior to the public auction contemplated in section 182-4 or 182-5 for the granting of mining lease without public auction contemplated in section 182-5, the board of land and natural resources shall cause a mining lease for the land in question to be drawn. The lease shall describe the land and shall contain, in addition to such other provisions which the board may deem appropriate, provisions to the following effect:

(1) The term of the lease shall be sixty-five years or for a lesser period at the discretion of the board.

(2) The payment of royalties to the State shall be fixed by the board, provided that in the case of bauxite, bauxite clay, gibbsite, diaspore, bohemitte, and all ores of aluminum, the amount of royalties for each long dry ton of ore as beneficiated shall not be less than twenty-five cents or the equivalent of the price of one pound of virgin pig aluminum, whichever is higher, nor shall it exceed the equivalent of the price of three pounds of virgin pig aluminum; provided further, that the rate of royalty for ore processed into aluminum oxide in the State shall be set at eighty per cent of the rate of royalty for ore not processed to aluminum oxide in the State; and provided further, that the royalty shall be fixed at a rate which will tend to encourage the establishment and continuation of the mining industry in the State. The prices of virgin pig aluminum for the purpose of determining the royalties hereunder shall be the basic price on the mainland United States market for virgin pig, not refined, f.o.b. factory. The royalties shall be in lieu of all severance or other similar taxes upon mining, beneficiating, handling, storing, treating, or transporting of the mineral or any product into which it may be processed in the State, and shall not be subject to reopening or renegotiating for and during the first twenty years of the lease term.

In the event the lessee desires to mine other minerals, the lessee shall, before mining the minerals, so notify the board in writing and the board and the lessee shall negotiate and fix the royalties for such minerals.

(3) The lessee shall covenant and agree that the lessee shall commence mining operations upon the leased land within three years from the date of execution of the lease; provided, that so long as the lease is actively and on a substantial scale engaged in mining operations on at least one such lease on the same minerals, the covenant shall be suspended as to all other leases held by the lessee.

Any interested party may, however, request that a mining lease contain a research period under which the lessees shall be required to expend money in research and development to establish a method to make economical the mining and processing of the mineral deposits contained in the lease. If the board determines that the research period would be beneficial it shall fix the period of research and shall also fix a minimum expenditure for such period or money spent by the lessee in research and development and the method by which the lessee shall establish that such expenditure is in fact made. In such leases, the obligation to commence mining operations within three years shall not commence until the expiration of the research period.

(4) For the period of the lease the lessee shall have the exclusive right to possess of the minerals contained and the exclusive rights to mine and remove the minerals by means which shall be reasonable and satisfactory to the board and to occupy and use so much of the surface of the land as may reasonably be required, subject to the provisions of section 182-3. The right to use the surface shall include the right to erect transportation facilities thereon, construct plans for beneficiating, drying, and processing the minerals and such other uses as may be necessary for or incidental to the clearing, mining, and processing of the minerals; provided, that the lessee shall comply with all water and air pollution control laws, rules and regulations of the State or its political subdivisions.

The lessee may retain all minerals separated from the land as a part of the process of mining the minerals specified in the mining lease; provided, that the lease may prescribe the accounting and taxing procedures by which the amount and quality of such additional minerals shall be determined for the purpose of computing the severance or excise taxes thereon. [L. 1963, c. 1, pt. of §1, Supp. §99A-7]

$182-8 Number of leases to be issued. There shall be no limit upon the number of mining leases that may be granted to any person undertaking any mining operations. No lease shall grant and include an area of land exceeding four square miles of contiguous land, in which the longest dimension of the area demised shall exceed its narrowest dimension by more than six times. [L. 1963, c. 1, pt. of §1, Supp. §99A-8]

$182-9 Deposit; first year's rental. All bidders shall prior to the date of public auction post with the board of land and natural resources a deposit of $500. The board shall refund to unsuccessful bidders such amount within two days after the auction. All bidders, prior to the date of the auction, shall promise their financial ability to conduct mining operations and of their capability to develop a mine. The successful bidder shall pay to the board the amount of the first year's rental within two days after the acceptance of the bid by the board and the $500 deposit shall be credited against such sum. If the deposit exceeds the first year's rental, the excess shall be refunded. All rentals thereafter are payable in advance once a year. [L. 1963, c. 1, pt. of §1, Supp. §99A-9]

$182-10 Revocation of mining leases. A mining lease may be revoked if the lessee fails to pay rentals when due or if any of the terms of the lease or of law are not complied with, or if the lessee wholly ceases all mining operations for other than reasons of force majeure or the uneconomic operation of the mining lease for a period of one year without the written consent of the board of land and natural resources; provided, that the board shall give the lessee notice of any default and the lessee shall have sixty days from the date of the notice to remedy the default. [L. 1963, c. 1, pt. of §1, Supp. §99A-10]

$182-11 Assignment. Any mining lease may be assigned in whole or in part, subject to the approval of the board of land and natural resources, to an assignee who shall have the same qualifications as any bidder for a mining lease. The assignment shall be made by the terms of the lease to the extent as if the assignee were the original lessee. The approval of the assignment by the board shall release the assignee from any liabilities or duties under the mining lease as to the portion thereof assigned except for any liability or duty which arose prior to the approval of the assignment by the board and which remains unsatisfied or unperfected. [L. 1963, c. 1, pt. of §1, Supp. §99A-11]

$182-12 Acquisition of rights-of-way. The State may, at its discretion, acquire by eminent domain, by negotiation or otherwise, such real property, rights-of-way, and interest in, over, across, under, and through any real property which may be necessary for the transportation or communication facilities in connection with any mining operations and may assign, lease, or otherwise transfer such property or rights to persons or corporations engaged in mining operations. [L. 1963, c. 1, pt. of §1, Supp. §99A-12]

$182-13 Surrender of mining leases. Any lessee of a mining lease, who has complied fully with all the terms, covenants, and conditions of the existing lease, may, with the consent of the board of land and natural resources, surrender at any time and from time to time all or any part of a mining lease or the land contained therein upon payments as consideration therefor two years' rent prorated upon the portion of the lease or land surrendered. The lessee shall thereupon be relieved of any further liability or duty with respect to the land or lease so surrendered; provided, that nothing herein contained shall constitute a waiver of any right of the lessee; and any lease surrendered as a result of any previous activities conducted on the land or under the lease. Upon the termination, cancellation, or surrender of any mining lease or any portion thereof, the lessee shall have the right to remove any and all equipment, buildings, and plants placed on the land surrendered by the holder of the mining lease. A mining lease may also be surrendered if as a result of a final determination by the lessee that it is not prudent or feasible to continue to operate the lease, the lessee is released from any and all liabilities for ore which may be held on or in the vicinity of the mining lease; provided, that the lessee shall give thirty days notice to the State of its intention to surrender the mining lease; and provided further, that the lessee shall be reimbursed for all rentals paid to the State pursuant to the lease. [L. 1963, c. 1, pt. of §1, Supp. §99A-13]

$182-14 Rules and regulations. Subject to chapter 91, the board of land and natural resources may make, promulgate and amend such rules and regulations as it deems necessary to carry out this chapter and to perform its duties thereunder, all consistent with and for the purpose of protecting; the public interest. All such rules and regulations shall have the force and effect of law. [L. 1963, c. 1, pt. of §1, Supp. §99A-14]

$182-15 Other use of surface of state lands. Where mining leases are granted on state lands, the board of land and natural resources may reserve to the State the right to lease or to authorize the use of any other use of surface of the lands embraced within the lease. The lease, sale, or other disposal of the surface, it made, shall be subject to the rights of the holder of the mining lease. [L. 1963, c. 1, pt. of §1, Supp. §99A-15]
A BILL FOR AN ACT

RELATING TO RESERVATION AND DISPOSITION OF GOVERNMENT MINERAL RIGHTS

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

SECTION 1. Findings and determination. The Legislature of the State of Hawaii finds and declares that the geothermal resources of the State provide an energy potential which may be utilized to supply power economically with minimal adverse environmental effects. It is the intent of the Legislature to establish in law, the definition and ownership of the geothermal resources, to encourage their development, and to provide for their administration and management in the public interest.

SECTION 2. Section 182-1, Hawaii Revised Statutes, is amended to read:

"Sec. 182-1 Definitions. In this chapter, if not inconsistent with the context:

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

(2) 'Board' means the board of land and natural resources.

(3) '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.

(4) 'State lands' includes all public and other lands owned or in possession, use and control of the then Territory of Hawaii or the State of Hawaii, or any of its agencies and this chapter shall apply thereto.

(5) 'Occulier' means any person entitled to the possession of land under a certificate of occupation, a nine hundred and ninety-nine year homestead lease, a right of purchase lease, a cash freehold agreement, or under a deed, grant, or patent, and any person entitled to possession under a general lease, and also means and includes the assignee of any one of the above.
(6) 'Force majeure' means any fire, explosion, flood, volcanic activity, seismic or tidal wave, mobilization, war (whether declared or undeclared), act of any belligerent or any such war, riot, rebellion, the elements, power shortages, strike, lock-out, difference of workmen, any cause which prevents the economic mining of the lease, or any other cause beyond the reasonable control of the party affected, whether or not of the nature or character hereinabove specifically enumerated.

(7) '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 of 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.

(8) 'Mining lease' means a lease of the right to conduct mining operations, including geothermal resource development, on state lands and on lands sold or leased by the State or its predecessors in interest with a reservation of mineral rights to the state.

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

SECTION 3. Statutory material to be repealed is bracketed.

New material is underscored. In printing this Act, the revisor of
statutes need not include the brackets, the bracketed material or
the underscoring.

SECTION 4. This Act shall take effect upon its approval.
# Regulations on Leasing of Geothermal Resources and Drilling for Geothermal Resources in Hawaii

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PART I - LEASING OF GEOTHERMAL RESOURCES

RULE NO. 1

GENERAL

1.1 Purpose.

The purpose of these regulations is to provide for the leasing of State and reserved lands for the purpose of geothermal resources exploration, development and production and to provide for the regulation of all drilling for geothermal resources in Hawaii in order to prevent waste and damage to geothermal resources, to prevent damage to other natural resources, to prevent degradation of water resources, to protect the environment, and to prevent injury to life and property.

1.2 Authority.

These rules are promulgated pursuant to the jurisdiction and authority of the Board of Land and Natural Resources provided in Chapters 182, 178, and 177 of the Hawaii Revised Statutes.

1.3 Incorporation by Reference.

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

1.4 Revision.

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

1.5 Legal Conflicts.

Nothing in these regulations shall be construed as superseding Chapters 91, 182, 178, 177, 183-41, and 205 of the Hawaii Revised Statutes, as amended.
Definitions.

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

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

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

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

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

"Reserved lands" 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.

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

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

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

"By-product" means (1) any mineral or minerals which are found in solution or developed in association with geothermal resources and which have a value not sufficient to warrant extraction and production by themselves, and (2) commercially demineralized water.

"Commercial quantities" means quantities sufficient to provide a return after all variable costs of production have been met.
"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 the person as defined herein to whom a mining lease has been granted and its successor in interest or assignee. It also means any agent of the mining or an operator holding authority by or through the mining lessee. Unless the context indicates otherwise "Lessee" means "mining lessee".

"Operator" means the person as defined herein having control or management of mining operations on the leased lands or a portion thereof. The operator may be the lessee, designated operator, or agent of the lessee or holder of rights under an approved operating agreement.

"Unit agreement" means an agreement or plan of development and operation for the production and utilization of separately owned interests in the geothermal resources made subject thereto 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.

RULE NO. 2
GEOTHERMAL EXPLORATION PERMITS

2.1 Exploration Permit Required.

An exploration permit is required to conduct any exploration activity which relates to the search on State Lands for evidence of geothermal resources and which may result in damage to State lands or resources thereon. Such exploration activity includes, but is not limited to, geophysical operations, drilling of shallow temperature test holes less than 500 feet in depth, construction of roads and trails, and cross-country transit by vehicle over State lands. Exploration activity requiring a permit does not include drilling for subsurface geologic information or for the discovery, evaluation, or production of geothermal resources; such drilling being regulated elsewhere in these rules and regulations. Exploration activity requiring a permit does not include the casual use of State lands for geothermal resources exploration. Casual use means activities that involve practices which do not ordinarily lead to any appreciable disturbance or damage to lands, resources and improvements. For example, activities which do not involve use of heavy equipment or which do not involve vehicle movement except over established roads and trails are considered casual use. Exploration activity requiring a permit under Rule 2 does not include exploration activity conducted pursuant to a geothermal mining lease on State lands.

Rule 2 is not applicable to exploration activities conducted pursuant to a mining lease.
2.2 Application for Exploration Permits.

Any person may apply for an exploration permit by submitting a written application to the Board containing the following:

a. 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;

b. a description of the type of exploration activities proposed to be undertaken;

c. a description of the lands to be explored;

d. a map or maps, available from State or Federal sources, showing the lands to be entered or disturbed;

e. the approximate dates of the commencement and termination of exploration activities.

f. a surety company bond of not less than $5,000 conditioned upon compliance with all terms and conditions of Rule 2 and the exploration permit.

2.3 Permit Filing Fee.

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

2.4 Number of Permits.

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

2.5 Approval of Permit Applications.

The Board shall either approve subject to terms and conditions it may at its discretion specify, or disapprove an application for a geothermal exploration permit within 60 calendar days after the date of receipt of the application.

2.6 Non-Exclusive Permits.

Geothermal exploration permits under Rule 2 allow only non-exclusive access to State lands for geothermal exploration purposes and do not provide any preference rights to a mining lease of the lands explored by such permits.

2.7 Duration of Permits.

Exploration permits shall be for a period of two years from date of issuance, but may be renewed for an additional period of time at the discretion of the Board.
2.8 Confidentiality of Exploration Results.

Upon termination of the exploration permit, the results of the exploration shall be submitted to the Chairman for the Board and kept confidential. If the person holding the permit does not apply for a mining lease of the lands explored within a period of six months from the date the results are submitted to the Chairman, then the Board in its discretion need not keep the results confidential.

2.9 Departmental Investigation.

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

2.10 Suspension of Permits.

The Chairman may issue an order immediately suspending operations conducted under a geothermal exploration permit if the permittee is in violation of any terms or conditions of the permit which, in the judgment of the Chairman, jeopardizes the public health, safety, and welfare.

2.11 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, that permit requirements are not being observed after notification to the permittee.

RULE NO. 3
GEOTHERMAL MINING LEASES

3.1 Geothermal Mining Leases.

The Board may, in accordance with these regulations, lease the right to discover, develop and utilize geothermal resources in State and reserved lands. Prior to the public auctioning or granting without public auction of a mining lease, the Board shall set the term and conditions of the lease.

3.2 Geothermal Resources Available for Leasing.

All State and reserved lands, at the discretion of the Board, shall be considered available for geothermal mining leases.

3.3 Qualified Applicants.

Any person as defined in these regulations shall be qualified to lease geothermal resources in State or reserved lands or take or hold an interest therein, unless the Board first determines after notice and hearing for good cause shown that a person is disqualified from leasing or taking or holding an interest in geothermal resources in State lands or reserved lands.
3.4 **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 Rule 4.

3.5 **Mining Leases Without Public Auction.**

Mining leases on reserved lands may be granted on a competitive bid basis at public auction or without public auction to the occupier thereof or his assignee of the rights to obtain a mining lease if approved by two-thirds of its voting members as provided in Rule 5.

3.6 **Size of Leaseable Tract.**

A geothermal mining lease shall not embrace an area of more than 5,000 acres of contiguous land; except that as provided in Section 182-8, a mining lease shall not embrace 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.

3.7 **Assignment of Mining Leases.**

a. All applications for approval of assignments must be accompanied by a non-refundable fee of $100.00 for each assignment.

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

c. No assignment shall be effective until written approval is given. An assignment shall take effect the first day of the month following the approval of the assignment.

d. A lease may be assigned as to all or part of the acreage included therein to any person qualified to hold a State lease, provided that neither the assigned nor the retained part created by the assignment shall contain less than 100 acres. No undivided interest in a lease of less than 10% shall be created by assignment.

e. The assignor and his surety shall continue to be responsible for performance of any and all obligations under the lease until the approval of the assignment. After the approval of any assignment, the assignee and his surety shall be bound by the terms of the lease to the same extent as if the assignee were the original lessee, any conditions in the assignment to the contrary notwithstanding.
f. Where an assignment does not segregate the record title to the lease, the assignee, if the assignment so provides, may become a joint principal on the bond with the assignor. The application must also be accompanied by a consent of assignor’s surety to remain bound under the bond of record, if the bond, by its terms, does not contain such consent. If a party to the assignment has previously furnished a statewide bond, no additional showing by such party is necessary as to the bond requirement.

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

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

3.8 Revocation of Mining Leases.

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

3.9 Surrender of Mining Leases.

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

3.10 Number of Mining Leases; Leasehold Limitations.

There shall be no limit upon the number of geothermal mining leases that may be granted to any person undertaking any geothermal mining operation, as specified in Section 182-8 of Chapter 182, Hawaii Revised Statutes.
However, no person shall take, hold, own, or control at one time, whether acquired from the Board under these rules by lease or approved assignment of lease, or indirectly, a divided or undivided interest in geothermal resources in State and reserved lands in excess of 40,000 acres. In computing total holdings, ownership, or control, no person shall be charged with an interest through any association, firm or corporation unless he is the beneficial owner of 10 percent or more of the stock or other instruments of ownership or control of such association, firm, or corporation. Persons owning an overriding royalty or other interest determined by or payable out of a percentage of production from a lease will be charged with an interest. The unitizing of acreage in one or more leases pursuant to a cooperative or unit plan of development or operation approved by the Board shall be excepted in determining an interest. Leased acreage actually producing geothermal resources and paying production royalties shall not be included in accountable interests.

3.11 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 and determined prior to the bidding or granting of the lease by the Board, except that the sum of primary and all continuation periods of such leases shall not exceed 65 years from the effective date. The effective date of all leases shall be the first day of the month following the Board's approval of the lease bid or lease grant, as the case may be. All leases may be continued beyond the primary period as provided herein Rule 3.11, without reopening or renegotiating any terms or conditions of the lease.

b. If during the primary period of a mining lease, geothermal resources are being produced or utilized in commercial quantities, that lease shall continue for so long thereafter as geothermal resources are produced or utilized in commercial quantities. Production or utilization of geothermal resources in commercial quantities shall be deemed to include the completion of one or more wells producing or capable of producing geothermal resources for delivery to or utilization by a facility or facilities not yet installed, but scheduled for installation.

c. If, at the end of the primary term of a mining lease, geothermal resources are not being produced or demonstrably capable of being produced from the leased land, but the lessee is actively engaged in drilling operations 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 five years and for as long thereafter as geothermal resources are being produced or utilized in commercial quantities.

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

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

3.12 Rentals.

a. Lessee shall pay to the State of Hawaii in advance each year the annual rental bid for each acre or fraction thereof under lease. The annual rental for the first year of the lease shall be due and payable and shall be received in the offices 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 such sum. Second year and subsequent rental payments must be received in the office of the Department in Honolulu on or before the anniversary date of the lease.

b. Annual rentals for each acre or fraction thereof under lease shall be at the price bid at public auction. The annual rental due each year shall be deducted from production royalties due and accrued during that same year, if there be any. The annual rental due a given year shall not be deducted from production royalties due in future years.

3.13 Royalties on Geothermal Production.

a. The rate of the royalty to be paid to the State of Hawaii for the production of geothermal resources shall be determined by the Board prior to the bidding or granting of a mining lease, but the rate shall not be less than 10 percent nor more than 15 percent of the production value of the geothermal resources produced under the lease and sold or utilized by the lessee.

b. The production value of geothermal resources produced for the purpose of computing royalties shall be determined by the gross sale price paid by a power plant or other legal purchasers for value. In the event that geothermal production hereunder is not sold but is furnished to a plant owned or controlled by the lessee, the gross sale price of such production for purposes of computing royalties shall be that which is reasonably equal to the price being paid to other geothermal producers for geothermal production of like quality and quantity. Should the Board believe that any charges imposed and deducted are excessive or that the price received by the lessee is unreasonable, the lessee shall upon thirty (30) days notice, provide the Board with evidence that the charges or price or both comply with the above requirements.

c. The rate of royalty to be paid to the State of Hawaii for production of any geothermal by-products shall be 5 percent of the amount or value of any such by-product produced under the lease and sold, exchanged or otherwise disposed of by the lessee, including commercially demineralized
water, except that no payment of a royalty will be required on such water if it is used in plant operation for cooling or generation of electric energy. No royalty shall be paid for associated by-products used or consumed by lessee in his production operations.

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 such payment with a true and correct written statement by the lessee, showing the volumes of each geothermal resource sold, used, or otherwise disposed of, and lessee shall furnish such other data as may be necessary to enable the Board to audit and verify all royalties due and payable to the State of Hawaii.

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

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

3.14 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 him or by other lessees, but lessee shall not do so without the Board's approval. However, before there shall be such a commingling of geothermal production the lessee shall determine the quantities and value of such production upon which royalties are due under the lease and agrees that in making such determinations, all measurements and samples shall be made and taken in accordance with good geothermal industry practices.

3.15 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 are authorized, with the written consent of the Board, to commit the State lands to unit, cooperative or other plans of development or operation with other State lands, Federal lands, or privately-owned lands. Applications to unitize shall be filed with the Chairman who shall certify whether such plan is necessary or advisable in the public interest. He may require whatever documents or data he deems necessary. To implement such unitization, 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 such 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 of Hawaii. The unit agreement should be signed by or in behalf of all interested necessary parties before being submitted to the Chairman. It will be effective only after approval by the Chairman. The unit operator must be a person as defined by these rules and he must be approved by the Chairman.

c. The owners of any right, title or interest in the geothermal resources to be developed or operated under an agreement can be regarded as proper parties to a proposed agreement. All such owners must be invited to join as parties to the agreement. If any owner fails or refuses to join the agreement, the proponent of the agreement should declare this to the Chairman and should submit evidence of efforts made to obtain joinder of such 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 at their par value to the amount of the bond and by a proper conveyance to the Board with full authority to sell such securities in case of default in the performance of the obligations assumed. The liability under the bond shall be for such amount as the Chairman shall determine to be adequate to protect the interests of the State of Hawaii. Additional bond coverage may be required whenever deemed necessary by the Chairman. In case of changes of unit operator, a new bond must be filed or a consent of surety to the change in principal under the existing bond must be furnished.

e. Any modification of an approved agreement will require approval of the Chairman under procedures similar to those cited in paragraph "a" of this rule.

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 such unit or cooperative agreement, but in no event beyond that time provided in Rule 3.11. Rentals or royalties on leases so extended shall be at the rate specified in the lease.

g. Any lease which shall be eliminated from any such cooperative or unit plan of development or operation, or any lease which shall be in effect at the termination of any such 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 Rule 7.8, or so long thereafter as geothermal resources are produced in paying quantities, but in no event beyond the time provided in Rule 3.11a.
h. Before issuance of a lease for lands within an approved unit agreement, the lease applicant or successful bidder will be required to file evidence that he has entered into an agreement with the unit operator for the development and operation of the lands in a lease if issued to him 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 such agreement. If such statement is acceptable, he will be permitted to operate independently, but will be required to perform his operations in a manner which the Board deems to be consistent with the unit operations.

3.16 Bond Requirements.

Every lessee of a mining lease and every assignee thereof shall file with the Board, a bond, in a form and amount approved by the Board and made payable to the State of Hawaii, conditioned upon faithful performance of all requirements of Chapter 182, Hawaii Revised Statutes, of these regulations, 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 reserved lands.

3.17 Liability Insurance.

Prior to entry upon the leased lands, lessee shall cause to be secured and to be thereafter maintained in force during the term of the lease, public liability and property damage insurance and products liability insurance in the amounts to be determined by the Board in the lease for damages to property and products damaged caused by any occupancy, use, operations or any other activity on leased lands carried on by lessee, its agents or contractors in connection therewith. Liability coverage for explosion, collapse and underground hazards are to be included prior to initiation of operations to drill a well for geothermal discovery, evaluation or production. Lessee shall evidence such additional coverage to the Chairman prior to initiation of drilling operations. If the land surface and improvements thereon covered by the lease have been sold or leased by the State of Hawaii, the owner or lessee of surface rights and improvements shall be a named insured. The State of Hawaii shall be a named insured in all instances. This policy or policies of liability insurance shall contain the following special endorsement:

"The State of Hawaii, the Hawaii State Board of Land and Natural Resources, the Chairman of the Board of Land and Natural Resources, the Department of Land and Natural Resources, and (herein insert name of owner or lessee of surface rights, if applicable) and the officers, employees and agents of each and every of the foregoing (hereinafter referred to as "additional insureds") are additional insureds under the terms of this policy, provided, however, the additional insureds shall not be insured hereunder for any primary negligence or misconduct on their part, but additional insureds shall be insured hereunder for secondary negligence or misconduct, which shall be limited to the failure to discover and cause to be corrected the negligence or misconduct of lessee, its agents or contractors. This insurance policy will not be cancelled without thirty (30) days prior written notice to the Board. None of the foregoing additional insureds is liable for the payment of premiums or assessments on this policy."
No cancellation provision in any insurance policy shall be in derogation of the continuous duty of lessee to furnish insurance during the term of this contract. Said policy or policies shall be underwritten to the satisfaction of the Chairman. A signed and complete certificate of insurance, with the endorsement required by this paragraph, shall be submitted to the Chairman prior to entry upon the leased land. At least thirty (30) days prior to the expiration of any such policy, a signed and complete certificate of insurance, with the endorsement required by this paragraph, showing that such insurance coverage has been renewed or extended, shall be filed with the Chairman.

3.18 **Hold Harmless.**

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

3.19 **Title.**

The State of Hawaii does not warrant title to the leased lands or the geothermal resources and associated by-products which may be discovered thereon; the lease is issued only under such title as the State of Hawaii may have as of the effective date of the lease or thereafter acquire. If the interest owned by the State in the leased lands includes less than the entire interest in the geothermal resources and associated by-products for which royalty is payable, then the royalties provided for in the lease shall be paid to the State only in the proportion which its interest bears to said whole and undivided interest in said geothermal resources and associated by-products for which royalty is payable; provided, however, that the State is not liable for any damages sustained by the lessee.

If any claim is asserted or any action or proceeding instituted by any third party claiming title to the leased lands or any part thereof or any interest therein or in any production therefrom, adverse to the State of Hawaii or in hostility to rights claimed in good faith by Lessee under this lease, then during the pendency of such controversy and until ninety (90) days after final determination thereof, lessee may defer or discontinue all operations on the leased lands, or if it continues to operate, it may deposit royalties accruing hereunder in respect to the production therefrom in any bank in the State of Hawaii qualified as a depository of State funds to abide the final determination of such controversy. The Board shall receive earned interest with principal upon prevailing in litigation.
RULE NO. 4
PROCEDURES FOR LEASING OF STATE LANDS

4.1 Application to Board; Filing Fee

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

Each application for a mining lease shall be accompanied by a non-refundable filing fee in the amount of $100.00.

4.2 Lease Application Exhibits

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

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

b. A description of the known or potential geothermal resource desired to be leased for exploration and development.

c. A geologist's preliminary survey report on the surface and subsurface geology, nature and occurrence of the known or potential geothermal resources, surface water resources, and ground water resources; and an assessment of the environmental impact from geothermal resource exploration and development.

d. Preliminary proposal of plan for geothermal exploration and development.

Information deemed proprietary by the applicant shall be kept confidential by the Board for a period of six months after any lease granted for any of the land sought for leasing. The following information may be made public by the Board:

(1) Applicant’s name and address.

(2) A description of the land nominated for leasing.

(3) A general description of the geothermal resources to be explored and developed.

4.3 Public Notice of Lease Applications.

As soon as practicable after receipt of an application, a notice of the lease application shall be published in a newspaper of general circulation in the county where the land nominated for leasing is located at least once in each of three successive weeks, describing the land nominated for leasing and the geothermal resources to be explored and developed.
4.4 Consideration of Applications.

Within twelve weeks from the date of the first publication of notice or such further time as may be reasonably necessary, the Board shall decide whether or not to lease the land and if deemed appropriate may modify the area sought to be leased. Prior to making its decisions, the Board shall, when appropriate, evaluate fully 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 will consider the potential impact of possible geothermal development and utilization including the construction of power generating plants and transmission facilities which may or may not be included in a mining lease. As deemed appropriate, 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 socio-economic 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 made after due notice of public hearing to all parties in interest.

4.5 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 shall disapprove the application for a mining lease of the land without putting the land to auction.

4.6 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 protect the environment, to permit use of the land for other purposes, and to protect other natural resources.

4.7 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 description of the land, the geothermal rights to be leased, and the terms and conditions of the lease sale including upset rental rate and royalties. The notice shall also indicate that the proposed plan of operation as required by Rule 7.2 must be filed before the lease can be granted.

4.8 Qualification of Bidders.

On or before twenty (20) days prior to the public auction, all bidders shall satisfy the Board of their financial ability to conduct geothermal explorations and drill for and develop geothermal resources.
4.9 **Bidding Requirements.**

On or before twenty (20) days prior to the public auction, each prospective bidder shall deposit with the Board a certified or cashier’s check in the amount of $500. The deposit shall be refunded to unsuccessful bidders within two days after the public auction, but the deposit shall be forfeited by prospective bidders who fail to bid.

4.10 **Award of Leases.**

The lease offered for bid shall be awarded to the highest qualified bidder. The right to reject any and all bids is reserved to the Board. If the Board fails to accept the highest bid for the lease within 30 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 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 such sum.

Three copies of the lease will be sent to the successful bidder who shall within 30 days from delivery thereof be required to execute them, to file the required bond or bonds, and to submit the proposed plan of operation as required by Rule 7.2. When the three copies of the lease are executed by the successful bidder and returned to the Chairman, 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 regulations, his deposit will be forfeited.

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**RULE NO. 5**

**PROCEDURES FOR LEASING OF RESERVED LANDS**

5.1 **Application to Board.**

Applications for mining lease on reserved lands shall be made to the Board in accordance with Rule 4.1 and 4.2.

5.2 **Approval of Leasing by Public Auction.**

a. If an application for a mining lease on reserved lands has followed Rules 4.1 through 4.6 and the Board has determined that for such application the proposed geothermal mining use of the land would be of greater benefit to the State than the existing or reasonably foreseeable future use of the land sought to be leased, the Board has the option of approving the granting of the mining lease: (1) by public auction in accordance with Rule 5.2(b); or (2) without public auction in accordance with Rule 5.3.

b. If the occupier or his assignee of the right to obtain a mining lease shall fail to apply for a mining lease within six months from the date of notice from the Board of its finding that it is in the public interest that the geothermal resources in the reserved lands be mined, a mining lease shall be granted by public auction under Rule 4, 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.
5.3 Approval of Leasing Without Public Auction.

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

RULE NO. 6
SURFACE RIGHTS AND OBLIGATIONS

6.1 Compensation to Occupiers.

a. The occupier of State or reserved lands leased by the Board shall be entitled to a reasonable rental from the mining lessee for the use of the surface for exploration and mining operations. Also, if the occupier suffers damage to his crops, his improvements, or the surface condition of the land caused by exploration and mining operations or by the failure of the mining lessee to properly restore the land after termination of operations, the occupier shall be reimbursed the full extent of the damages by the mining lessee; provided, that the occupier was not granted a mining lease without public auction as provided in Rule 5.

b. Nothing herein shall be construed to prevent the occupier from demanding and receiving rentals from the lessee of the mining lease or to forbid and prevent the occupier and the lessee from agreeing upon the amount of damages to be paid the occupier and the terms and conditions of payment. The occupier may in writing before or within thirty days after the public auction notify the Board that he elects to have the amount of damages and the amount of rentals to be paid as a result of the mining lease determined by arbitration with the successful bidder. In such event, the occupier shall notify the successful bidder of his election to arbitrate, and the arbitration 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 him the amount which in their judgment shall fairly compensate the occupier for the damages he may suffer to his crops or improvements or to the surface or condition of his land caused by the mining or other incidental operations, including exploratory work, and a reasonable rental for the use of the surface.

6.2 Mining Lessee's Rights.

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

a. 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 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 said surface is not necessary for use by the lessee in his exploration, development and production of the geothermal resources and associated by-products, but any lease, sale, or other disposal of surface rights if made, shall be subject to the rights of the mining lessee.

c. The Chairman or his designated representative 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 protect human life, wildlife, livestock and property from hazards associated with the operations. For this purpose, the lessee shall provide warnings, fencing, flagmen, barricades, well and hole coverings and other safety measures as appropriate. Restrictions on access must be approved by the Chairman as part of the Plan of Operations required under Rule 7.2.

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 pose an unreasonable risk to subsurface, surface or atmospheric resources.

RULE NO. 7
GEOTHERMAL MINING OPERATIONS UNDER THE LEASE

7.1 General Terms.

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

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

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

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

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

7.2 Plan of Operations Required.

A lessee shall not commence operations of any kind other than casual use prior to submitting to the Chairman and obtaining his approval of a Plan of Operations. Such a plan shall include:

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

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

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

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

e. Other areas of potential surface disturbance.

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

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

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

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

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

7.3 Amendments to Plan of Operations.

After completion of all operations authorized under any previously approved notice or plan, 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 he has submitted to the Chairman in writing a new plan of operations and has received written approval from him. However, in an emergency a lessee may take action to prevent damage without receiving prior approval from the Chairman, but in such cases the lessee shall report his action to the Chairman as soon as possible.

7.4 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 his name or the name of the operator, the lease number and the number of the well. The lessee shall take all necessary means and precautions to preserve these markings.

b. The lessee shall diligently take all necessary precautions to keep all wells under control at all times; utilize trained and competent personnel; utilize properly maintained equipment and materials; and use operating practices which insure the safety of life and property. The selection of the types and weights of drilling fluids and provisions for controlling fluid temperatures, blowout preventers and other surface control equipment and materials, casing and cementing programs, etc., to be used shall be based on sound engineering principles and shall take into account apparent geothermal gradients, depths and pressures of the various formations to be penetrated and other pertinent geologic and engineering data and information about the area.

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

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

7.5 Waste Prevention.

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

b. In the event any well has been, is or shall be completed on other than State or reserved land draining geothermal resources from the leased land, and if such well is producing geothermal resources in commercial quantities, provided lessee is not drilling or has not heretofore drilled an offset well thereto on the land then the Board may notify the lessee in writing to drill an offset well thereto, and within one hundred twenty (120) days from the date of such notice, 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 such 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.

c. The Chairman shall determine the value of production accruing to the Board and the compensation due to the Board where there is loss through waste as reimbursement for such loss. Payment for such losses will be paid when billed.

d. Subject to lessee's right to surrender the lease, where the Board determines that production, use or conversion of geothermal resources under a geothermal lease is susceptible of producing a valuable by-product or by-products, including commercially demineralized water contained in or derived from such geothermal resources for beneficial use in accordance with applicable State water laws, the Chairman shall require substantial beneficial production or use thereof, except where he determines that:
(1) Beneficial production or use is not in the interest of conservation of natural resources;

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

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

7.6 Protection of Other Resources.

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

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

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

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

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

f. Existing roads, 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 State specifications.

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

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

i. Access to drilling or production sites by the public shall be controlled by the lessee 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 be 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 of public lands and waters.

7.7 Suspension of Operations.

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

7.8 Diligent Operations Required.

The 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.

7.9 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 said 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. Such information shall be kept confidential for a period of one year from date of receipt, or longer at the discretion of the Board.

7.10 Surrender of Premises.

Within 90 days from the expiration of the lease, the lessee shall restore the lands covered by said lease or permit to their original condition as far as it is reasonable to do so, except for such roads, excavations, alterations or other improvements which may be designated for retention by the Board or any State agency having jurisdiction over the affected lands. Where determined necessary by the Board or such State agency, cleared sites and roadways shall be replanted with grass, shrubs or trees.
PART II - DRILLING FOR GEOTHERMAL RESOURCES

RULE NO. 8
GENERAL

8.1 Purpose.

All wells drilled in the State of Hawaii for the discovery evaluation, development, production, utilization and injection of geothermal resources or by-products shall be subject to Part II of these regulations and shall be drilled, operated, and maintained or abandoned in such a manner as to prevent or minimize damage or the threat of damage to life, health, property, environment, ground water resources, and geothermal resources.

8.2 Designation of Agent.

Every owner or operator of any well shall designate an agent, who resides in the State of Hawaii, giving his post office address, upon whom may be served all orders, notices, and processes of the Department or any court of law. Every person so appointing an agent shall, within five days after the termination of any such agency, notify the Chairman in writing of such termination, and unless operations are discontinued, shall appoint a new agent. All changes in the address of an agent must be recorded with the Chairman within five days of the change of the address.

RULE NO. 9
DRILLING OF GEOTHERMAL WELLS

9.1 Notice of Intent to Drill; Permit.

Before a person, as defined in these regulations, can commence the drilling of a new well; the deepening, redrilling, plugging or altering of casing of an existing well; or the redrilling of an abandoned well, he must file with the Chairman written Notices of Intent to Drill or to Deepen, Redrill, Plug or Alter Casing, as the case may be, accompanied by the appropriate fee and bond (see Rules 9.3 and 9.4). Drilling operations shall not commence until a permit has been issued by the Chairman. If operations have not commenced within one year of the receipt of the notice, the notice will be canceled. The Notices of Intent shall contain the following:

a. The exact location of the well and the elevation of the floor or kelly bushing of the proposed derrick. A resurvey by a licensed surveyor may be required if there is a dispute with the neighboring landowner over the location of a well or if the Department finds unreconcilable differences in the survey data submitted.

b. The number or other designation by which the well shall be known. Such number or designation shall be subject to the approval of the supervisor.
c. The operator's proposed casing program.

d. The purpose of the well and the owner's or operator's estimate of the depths between which production or injection will be attempted.

Notices of Intent to Drill for shallow temperature test holes of less than a depth of 500 feet must also be filed with the Chairman and drilling operations shall not commence until a permit has been issued by the Chairman.

9.2 Supplementary Notices.

A supplementary notice must be filed if there is any change in the original Notice of Intent and written approval must be received from the Chairman before the work is started.

9.3 Filing Fees.

Each Notice of Intent for shallow temperature test holes shall be accompanied by a non-refundable filing fee in the amount of $25.

Each Notice of Intent for any other well shall be accompanied by a non-refundable filing fee in the amount of $100.

9.4 Bonds.

a. All wells require a bond. Each person who engages in the drilling, redrilling, deepening, maintaining or abandoning of any well shall file with the Chairman an indemnity bond in the sum of five thousand dollars ($5,000) for each well or twenty-five thousand dollars ($25,000) for any number of wells. The bonds shall be executed by such person, as principal, and by an authorized surety company, as surety, conditioned that the principal named in the bonds shall faithfully comply with these regulations. The bonds shall secure the State against all losses, charges, and expenses incurred to it by the principal named in the bond.

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 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 Chairman an indemnity bond in the sum of $5,000 for each well acquired or a $25,000 blanket bond for any number of wells acquired.

9.5 Well Spacing.

a. Any well drilled for the discovery and/or production of geothermal resources or for injection of geothermal resources shall be located more than 100 feet from and within the outer boundary of the parcel of land on which the well is situated, or more than 100 feet from a public road, street, or highway dedicated prior to the commencement of drilling. 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 such a unit.
b. The Chairman shall approve proposed well spacing programs or prescribe such modifications to the programs as it deems necessary for proper development and conservation of geothermal resources, giving consideration to such factors as, but not limited to, topographic characteristics of the area, hydrologic, geologic, and reservoir characteristics of the area, the number of wells that can be economically drilled to provide the necessary volume of geothermal resources for the intended use, minimizing well interference, unreasonable interference with multiple use of lands, and protection of the environment.

9.6 Directional Drilling.

Where the surface of a parcel of land containing one acre or more is unavailable for drilling, a directionally drilled (other than a vertical direction) well may be located upon another parcel which may or may not be continuous. The location of such a well shall be not less than 25 feet from the outer boundary of the parcel on which it is located and not less than 25 feet from an existing street or road. The production or injection interval of such a well shall be not less than 100 feet from the outer boundary of the parcel into which it is drilled. The directional well surveys shall be filed with the Department for all wells directionally drilled.

9.7 Casing Requirements.

a. General. All wells shall be cased in such a manner as to prevent or minimize damage to the environment, ground water resources, geothermal resources, life, health and property. The permanent well head completion equipment shall be attached to the production casing or to the intermediate casing if production casing does not reach to the surface. 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 Notices of Intent.

b. Conductor Pipe. Conductor pipe shall be installed to a depth of a minimum of 50 feet and a maximum of 150 feet. In special cases the Chairman 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. Blowout-prevention equipment (BPOE) approved by the Chairman shall be installed on the conductor pipe on all exploratory wells and on development wells, when deemed necessary by the Chairman.

c. Surface Casing. 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.

Surface casing shall be set to a minimum depth of ten percent of the proposed total depth of the well or 500 feet, whichever is greater. If useable basal ground water is present or reasonably suspected to exist in the area, the depth of the surface casing shall be approved by the Chairman. If subsurface geological, hydrological, or geothermal conditions are known in or
in the vicinity of the area to be drilled, such conditions shall be used in deter-
mind 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 and either a
rapidly increasing thermal gradient or rapidly increasing formation pressures
are encountered.

d. Intermediate Casing. 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.

e. Production Casing. Production casing may be set above or through
the producing or injection zone and cemented above such 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 pro-
duction casing is lapped into an intermediate string, the casing overlap
shall be at least 50 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 pro-
duce corrosive brine reservoirs shall be of the same nominal inside diameter
from the shoe of the casing to the ground surface.

9.8 Mud Return Temperature Logging.

The temperature of the return drilling mud shall be monitored con-
tinuously during drilling of the surface casing portion of the drill hole.
Either a continuous temperature monitoring device shall be installed and main-
tained in working condition, or the temperature shall be read manually. In
either case, return mud temperatures shall be entered into the log book after
each joint of pipe has been drilled down (about every 30 feet).

9.9 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, depend-
ing upon the amount of subsurface geological or hydrological data is available,
and may not be required under certain conditions, subject to the approval of
the Chairman.

9.10 Blowout-Prevention Equipment.

a. General. Blowout-prevention equipment (BPOE) capable of shutting-
in the well during any operation shall be installed on the surface casing and
maintained ready for use at all times. BOPE pressure tests shall be witnessed
by the Chairman or his designated representative on all exploratory wells
prior to drilling out the shoe of the surface casing. The decision to require
and witness BOPE pressure tests on other types of wells shall be made on a
well-to-well basis. In any case, the Chairman must be contacted well 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 (1) psi per foot; (2) a pressure equal to the rated burst pressure of the BOPE anchor string; or (3) a pressure equal to 2000 psi.

b. BPOE Classes. The requirements for blowout-prevention equipment shall be guided by the following:

(1) NO BOPE: Required for known shallow, low temperature, low pressure areas where down-hole water temperatures are less than 100 degree Celsius at depths less than 500 feet or where temperature and pressures are unknown and the proposed depth of drilling is less than 500 feet.

(2) CLASS 2M BOPE (API CLASS 2M-A or 2M-RE): Required for low pressure areas where known temperatures are above 100 degree Celsius at depths less than 2,000 feet, or where subsurface temperatures and pressures are unknown and the proposed depth of drilling is less than 2,000 feet. Equipment shall include: 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; hydraulic and/or manual actuating system; kelly cock; a fill-up line installed above the BOPE; 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 a flow-down line fitted with two valves installed below the BOPE. The blow-down line shall be directed in such 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): 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: 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; 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 50 feet away from the well head; kelly cock and standpipe valve; a fill-up line installed above the BOPE; 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 a flow-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: 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 rotating-head installed at the top of the BOPE stack; 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; a banjo-box steam diversion unit installed below the double-ram BOPE, fitted and a muffler capable of lowering sound emissions to within acceptable standards; 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; a gate valve, with a minimum working-pressure rating of 300 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; all ram-type BOPE shall have a hydraulic actuating system utilizing an accumulator of sufficient capacity and a high-pressure backup system; dual control stations for hydraulic backup system, one at the driller's station and the other at least 50 feet away from the well head; Kelly cock and standpipe valves; 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 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.

9.11 Well Completion.

A well is considered to be completed 30 days after drilling operations have ceased and the well is capable of producing a geothermal resource, or 30 days after it has commenced to produce a geothermal resource, unless drilling operations are resumed before the end of the 30-day period. For the purpose of filing well records, the time limit of 60 days begins either when the well commences production or injection, the drilling operations are suspended for more than 30 days, or the well is abandoned.


The Chairman shall require such well tests or remedial work as in his judgment are necessary to prevent and minimize damage to life, health, property, natural resources, geothermal resources, ground water resources, and the environment. Types of tests shall include casing tests, cementing tests, and equipment tests.

RULE NO. 10
WELL MODIFICATION FOR INJECTION

10.1 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 Chairman. New wells may be drilled or old wells may be modified for such injection purposes.

10.2 Notices of Intent Required.

Prior to modification of existing wells for injection purposes, a Notice of Intent to Deepen, Redrill, Plug or Alter Casing must be filed with the Chairman together with filing fees and bonds, as required in Rule 9.1. Modification work shall not commence until a permit has been issued by the Chairman.
10.3 **Surveillance of Injection Wells.**

Surveillance of injection wells shall be necessary on a continuing basis 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 he shall be required to demonstrate to the Chairman or his designated representative that the casing has complete integrity by approved test methods.

To establish the integrity of the annular cement above the shoe of the casing, the owner or operator shall make sufficient surveys, within 30 days after injection is started into a well, to demonstrate that all the injected fluid is confined to the intended zone of injection. Thereafter, such surveys shall be made at least every two years, or more often if ordered by the Chairman. All such surveys shall be witnessed by the Chairman or his designated representative.

After the injection well has been put into service, the Chairman or his designated representative shall visit the well site periodically. At these times, surface conditions shall be noted and if any unsatisfactory conditions exist, the owner or operator shall be notified of needed remedial work. If this required work is not performed within 90 days, the permit issued for such well by the Chairman shall be rescinded. If it is determined that damage is occurring at a rapid rate, the Chairman may order that the repair work be done immediately.

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 reasons are such that it appears damage is being done, the permit issued by the Chairman may be rescinded, and injection shall cease.

At the discretion of the Chairman, when an injection well has been left idle for a significant length of time, the owner or 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, he shall be required to file an appropriate Notice of proposing to demonstrate by means of surveys that the injected fluids will be confined to the intended zone of injection.

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**RULE NO. 11**

**WELL MAINTENANCE**

All producing wells and appurtenances such as well head, separators, pumps, mufflers, manifolds, valves and pipelines shall be maintained in good working condition in order to prevent loss of or damage to life, health, property, natural resources, and environment. Periodic corrosion surveillance may be conducted by the Chairman or his designated representative.
RULE NO. 12
WELL ABANDONMENT

12.1 Notice of Intent Required.

The owner or operator of a well proposed to be abandoned must file with the Chairman a Notice of Intent to Abandon, prior to any such work on the well. The operator's proposed plans for abandonment shall be subject to approval prior to the issuance of a permit by the Chairman.

12.2 General Requirements.

a. The owner or operator shall promptly plug and abandon any well that is not in use or demonstrated to be potentially useful. No well shall be abandoned until its lack of capacity for further profitable production of geothermal resources has been demonstrated to the satisfaction of the Chairman. No well shall be plugged and abandoned until the manner and method of plugging have been approved or prescribed by the Chairman.

b. Prior to commencing abandonment operations, the Chairman shall be notified of all such operations.

c. 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. Such cement shall contain a high temperature resistant admix, unless this requirement is waived by the Chairman in accordance with the particular circumstances existing in that well or area.

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

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

f. Subsequent to plugging and abandonment operations in the hole, casings shall be cut off at least 6 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.

g. A History of Geothermal Resources Well shall be filed within 60 days after completion of abandonment; except in the case of a prospect well such report shall be filed within six months after abandonment.

h. 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 must be obtained from the Chairman before release of any bonds will be recommended.
12.3 Cementing Requirements.

a. If useable (as determined by the Chairman) basal ground water resources exist, a minimum of 100 lineal feet of cement shall be placed straddling the interface or transition zone between the overlying fresh water and underlying salt water in the open hole or behind casing, as the case may be.

b. One hundred (100) lineal feet of cement shall be placed straddling the bottom of the conductor pipe and the shoe of all casings.

c. Cement shall be placed solidly across geothermal zones and extending 100 lineal feet above and below such zones, whether in uncased or cased (perforated) hole.

d. Fifty (50) lineal feet of cement shall be placed above the top of casing liners.

e. One hundred (100) lineal feet of cement shall be placed straddling casing stubs and laps. If unable to enter casing stubs or laps, 100 lineal feet of cement shall be placed above the top of the stubs or laps.

f. If casing is collapsed, etc., cement shall be placed solidly in geothermal zones or perforated sections of casing and extending 100 lineal feet above such zone or perforated section by squeezing with a retainer or braden head.

g. A surface plug consisting of a minimum of 50 lineal feet of neat cement or ready mix concrete shall be placed below the surface of the well.

12.4 Deserted Wells.

The Chairman may order the abandonment of any well that has been deserted whether or not any damage is occurring or is threatened. Removal of drilling rig is prima facie evidence of desertion after the elapse of six months unless a request for an extension of time for not more than an additional six months is filed with the Chairman. For good cause shown, the Chairman may extend such additional period.

RULE NO. 13
WELL RECORDS AND REPORTS

13.1 General.

The owner or operator of any well shall keep, or cause to be kept, a careful and accurate log, core record, and history of the drilling of the well. The log shall be kept in the local office of the owner or operator and together with all other reports of the owner or operator, shall be subject, during business hours, to the inspection of the Chairman or his designated representative.
13.2 Records to be Filed.

Within 60 days after the completion of any well, the owner or operator shall file with the Chairman the following well records:

a. Drilling Log and Core Record. The drilling log shall show the lithologic characteristics and depths of formations encountered, the depths and temperatures of ground water-bearing and geothermal resources-bearing strata, the temperatures, chemical compositions, and other chemical and physical characteristics of fluids encountered from time to time, so far as ascertained. The core record shall show the depth, lithologic character and fluid content of cores obtained, so far as determined.

b. Well History. The well history shall describe in detail the chronological order on a daily basis all significant operations carried out and equipment used during all phases of drilling, testing, completion, recompletion and abandonment of the well.

c. Well Summary. The well summary report shall show data pertinent to the condition of the well at the time of completion of work done. Well locations shown on this form shall be surveyed by a licensed surveyor.

d. Electric logs, directional surveys, physical or chemical logs, salinity logs, water analyses, and temperature surveys, if performed.

13.3 Annual Reports to be Filed.

The owner or operator of any well which is producing geothermal resources or by-products or is being used for injection purposes shall file with the Chairman on or before the 30th day after the end of each calendar year, an annual report on the amount of geothermal resources produced or the amount of fluid injected for each month of the calendar year ended.

13.4 Confidentiality of Records and Reports.

Except as provided elsewhere in these regulations for wells on State and reserved lands, the well records and reports of all wells required to be filed shall be held confidential by the Department except for the following information: (1) well owner or operator's name, (2) well number, (3) elevation of well, and (4) location of well.

Such well records and reports required to be filed with the Chairman shall be open for inspection only to the Board, the Chairman, and designated State officials; and only to other persons who are authorized in writing by the owner or operator.

The records and reports for a completed or producing well that has been transferred by sale, lease, or otherwise shall be made available to the new owner or lessee, for inspection or copying and shall be made available for inspection or copying by others authorized in writing by such new owner or lessee.
13.5 **Records and Reports as Evidence.**

Records and reports required to be filed shall in no case be available as evidence in court proceedings. No officer or employee or member of the Board shall be allowed to give testimony as to the contents of such records except as necessary for the review of a decision of the Chairman or the Board, or in any proceeding initiated for the enforcement of an order of the administrator, or in criminal proceedings arising out of such records or the statements upon which they are based.

**RULE NO. 14**

**ENVIRONMENTAL PROTECTION**

a. Protection of the environment includes responsibility of the owner or operator of any well to: conduct exploration and development operations in a manner that will provide maximum protection of the environment; rehabilitate disturbed lands; take all necessary precautions to protect the public health and safety; and conduct operations in accordance with the spirit and objectives of all applicable environmental legislation.

b. Adverse environmental impacts from geothermal-related activity shall be prevented or mitigated through enforcement of 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 owner or operator after due notification, may be construed as grounds for the Chairman to order a suspension of well operations.

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

The owner or operator of a well shall provide for acquisition of environmental baseline data for a period of one year prior to submission of a plan for production. Techniques and standards to be used by the owner or operator for meeting these requirements shall be subject to the approval of the Chairman.

d. Aesthetics. The owner or operator of a well shall reduce visual impact, where feasible, by the careful selection of sites for operations and facilities. The design and construction of facilities shall be conducted in a manner such 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. Land Use and Reclamation. Drilling and operating plans shall be designed so that such operations will result in the least disturbance of land, water, and vegetation. Existing roads shall be used where feasible. Entry upon certain environmentally 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 Chairman.

Plans for drilling operations shall provide for the reclamation and revegetation of all disturbed lands in a manner approved by the Chairman. 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 such reclaimed areas may be required to facilitate restoration thereof.

f. Slope Stability and Erosion Control. Operations shall be conducted in such a manner so as to minimize erosion and disturbance to natural drainage. The owner or operator of a well shall provide adequate erosion and drainage control to prevent sediments from disturbed sites from entering watercourses for soil and natural resource conservation protection.

g. Biota. The owner or operator of a well shall conduct all operations in such a manner as to afford reasonable protection of fish, wildlife, and natural habitat. He shall take such measures as are necessary for the conservation of endangered and threatened species of flora and fauna as set forth by applicable legislation.

h. Cultural Resources Preservation. The owner or operator of a 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 Chairman, and operations on that site shall cease until said site can be assessed for its archaeological value.

i. Pollution: Waste Disposal. The owner or operator of a 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 wastes. Immediate corrective action shall be taken in all cases where pollution has occurred.

j. The owner or operator of a well shall design, plan, and conduct all well drilling, casing and cementing operations in such a manner as provide for protection of all useable ground water resources from exhaustion, depletion, waste, pollution, salt water encroachment or the threat thereof.
PART III - OTHER PROVISIONS

RULE NO. 15
APPEAL

As provided in Chapter 178 of the Hawaii Revised Statutes, any person adversely affected thereby may appeal to the circuit court from any ruling of the Board regulating the flow, manner of sealing, or manner of repairing of any well by filing, in writing, a notice of appeal within ten days after the date of the ruling with the clerk of the court and serving a copy thereof upon the Board stating the grounds therefor. The court shall have power to review and to affirm, modify, or reverse any decision or order of the Board so appealed from, in any matter of law or fact.

RULE NO. 16
PENALTIES

As provided in Chapter 178 of the Hawaii Revised Statutes, any person violating these regulations shall be fined not more than $100; and where continuance of waste, as defined in Chapter 178, is under immediate control, each day's continuance of the same, after written notice shall constitute a separate offense; provided, that when the continuance of the waste is not under immediate control, as where recasing or sealing is necessary, each day's continuance of the same shall constitute a separate offense after sixty days have elapsed from the time of receiving written notice to prevent waste. For violations under sections 178-5 and 178-6 of Chapter 178, HRS, each day's continuance of the same shall constitute a separate offense after 30 days have elapsed from the time of written notice of violations.

RULE NO. 17
INJUNCTIONS

As provided in Chapter 177 of the Hawaii Revised Statutes, if it appears to the Board that any person has engaged or is about to engage in any act or practice constituting a violation of that chapter or any rule, regulation, or order of the Board, the Board may bring an action in the appropriate circuit court to enjoin any such acts or practices and to enforce compliance with this chapter or any rule, regulation, or order. Upon a proper showing, the court shall grant a restraining order, temporary or permanent injunction, or other appropriate relief. The Board shall not be required to post a bond.
RULE NO. 18
AMENDMENTS

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

The Board of Land and Natural Resources on _________________, 19__, approved and adopted these rules and regulations.

STATE OF HAWAII

By ____________________________
Chairman and Member
Board of Land and Natural Resources

And By ____________________________
Member
Board of Land and Natural Resources

Approved this _______ day
of _____________________, 19__

Governor of Hawaii

Approved as to form:

Deputy Attorney General

Dated: ____________________________