



STATE OF HAWAII
DEPARTMENT OF PLANNING
AND ECONOMIC DEVELOPMENT

LAND USE COMMISSION

Room 104, Old Federal Bldg., 335 Merchant Street
Honolulu, Hawaii 96813 Telephone: 548-4611

GEORGE R. ARIYOSH
Governor

WILLIAM W. L. YUEN
Chairman

RICHARD B. F. CHOY
Vice Chairman

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GORDAN Y. FURUTANI
Executive Office

May 24, 1984

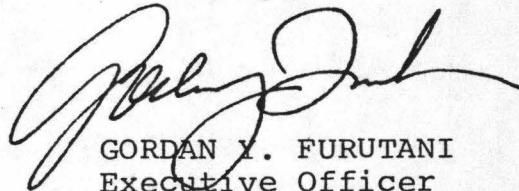
Mr. Sidney Fuke
Planning Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Fuke:

SUBJECT: SP77-265 - GEOTHERMAL EXPLORATION AND
DEVELOPMENT CORPORATION

In reference to our letter to you dated
January 19, 1984, enclosed is a copy of the
Decision and Order on SP77-265 for your information
and records.

Sincerely,



GORDAN Y. FURUTANI
Executive Officer

Enclosure

cc: E. C. Craddick, President
Barnwell Geothermal Corporation

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

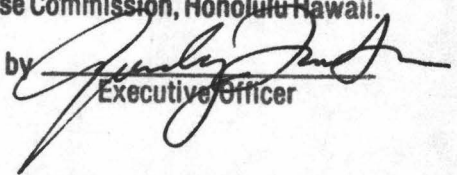
In the Matter of the Petition)
to Amend Time Conditions and)
Consolidate Special Permits of)
GEOHERMAL EXPLORATION AND)
DEVELOPMENT CORPORATION)
_____)

SP77-265 - GEOTHERMAL EXPLORATION
AND DEVELOPMENT
CORPORATION

This is to certify that this is a true and correct
copy of the Decision and Order on file in the office
of the State Land Use Commission, Honolulu Hawaii.

5/24/84
Date

by


Executive Officer

FINDINGS OF FACT, CONCLUSIONS OF LAW,
DECISION AND ORDER

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition)	
to Amend Time Conditions and)	
Consolidate Special Permits of)	SP77-265 - GEOTHERMAL EXPLORATION
	AND DEVELOPMENT
GEOTHERMAL EXPLORATION AND)	CORPORATION
DEVELOPMENT CORPORATION)	
_____)	

FINDINGS OF FACT, CONCLUSIONS OF LAW,
DECISION AND ORDER

This proceeding was initiated by Geothermal Exploration and Development Corporation (GEDCO) pursuant to Section 205-6, Hawaii Revised Statutes, and Part IX of the Land Use Commission's Rules of Practice and Procedure. The Land Use Commission, having considered the entire record on this matter, hereby makes the following findings of fact and conclusions of law:

FINDINGS OF FACT

1. On July 14, 1977, the Land Use Commission granted a Special Permit to Geothermal Exploration and Development Corporation (hereinafter "Petitioner") for the drilling of six exploratory geothermal wells on approximately 120 acres of land situated within the State Land Use Agricultural District at Opihikao, Puna, Hawaii, Tax Map Key 1-3-01: Portions of 24 and 25.
2. The subject property is located on the northwestern or Pahoehoe side of Opihikao Road, approximately 2.5 miles from the junction of Opihikao Road and the Pahoehoe-Kalapana Road.

3. On July 29, 1983, the LUC amended Condition No. 11 of the Special Permit to require the Petitioner to commence drilling of the second exploratory well by March 4, 1984.

4. The termination date of the Special Permit is July 14, 1984.

5. The Petitioner has requested a time extension of four years, elimination of specific starting and completion dates for drilling wells, and modification of existing conditions to require the commencement of drilling a minimum of one new well each year, the consolidation of all GEDCO special permits under the name of Barnwell Geothermal Corporation and to terminate the consolidated permit once seven successful wells have been drilled and tested.

6. The Petitioner has encountered previously unexpected field conditions in its drilling program which required modification to equipment and procedures. The Petitioner requires additional time to collect and evaluate technical information in order to adequately determine the extent and capacity of the geothermal reservoir in the area.

7. At its meeting on November 22, 1983, the Hawaii County Planning Commission voted to approve the request with the 20 conditions recommended by the County of Hawaii Planning Department to replace those which are now in effect. In addition, the Planning Commission recommended that the permit be issued under the name of Barnwell Geothermal Corporation.

8. The Petitioner filed the complete record of the proceeding at the Land Use Commission office on December 19, 1983.

CONCLUSIONS OF LAW

9. Unusual circumstances warrant the granting of a time extension to complete GEDCO's exploratory drilling program as defined in Rule 9-3 of the Rules of Practice and Procedure of the Land Use Commission.

10. The Commission's approval of a four-year time extension will provide sufficient time for the Petitioner to complete its exploration program and will not alter the reasons for which the permit was originally approved nor increase any of the expected impacts of the project.

11. The approval of the time extension request will not be contrary to the purpose and intent of the time condition. The purpose of stipulating time conditions is to assure that projects are developed in a timely manner.

DECISION AND ORDER

IT IS HEREBY ORDERED that the Petitioner Geothermal Exploration and Development Corporation's request for a four-year time extension, modifications of conditions and to consolidate all existing special permits in the name of Barnwell Geothermal Corporation be approved and Special Permit 77-265 be amended by replacing the existing conditions with the 20 conditions recommended by the Hawaii County Planning Commission.

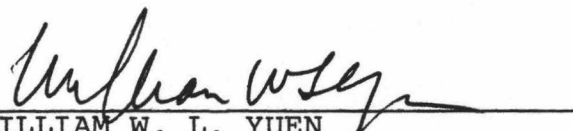
BE IT FURTHER ORDERED that the following additional condition be added to the Special Permit:

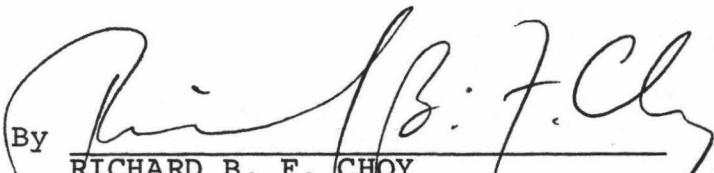
"21. Petitioner shall indemnify and hold harmless the Land Use Commission and its Commissioners from any and all claims and demands for damages arising from the Land Use Commission's approval of this Special Permit and any amendments, thereto, including, but not limited to any litigation regarding geothermal and environmental regulations or violations thereof, and any damages, expenses, liabilities, attorney fees and costs incurred by the Land Use Commission resulting from any such claims or demands or for which the Land Use Commission may be determined liable."

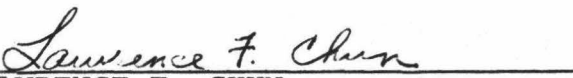
DOCKET NO. SP77-265 - GEOTHERMAL EXPLORATION AND
DEVELOPMENT CORPORATION

Done at Honolulu, Hawaii, this 16th day of May,
1984 upon motion duly adopted by the Land Use Commission on
the 17th day of January, 1984.

LAND USE COMMISSION
STATE OF HAWAII

By 
WILLIAM W. L. YUEN
Chairman and Commissioner

By 
RICHARD B. F. CHOY
Vice Chairman and Commissioner

By 
LAWRENCE F. CHUN
Commissioner

By 
SHINSEI MIYASATO
Commissioner

By 
WINONA RUBIN
Commissioner

DOCKET NO. SP77-265 - GEOTHERMAL EXPLORATION AND
DEVELOPMENT CORPORATION

By *T. P. Tacbian*
TEOFILO PHIL TACBIAN
Commissioner

By *Robert S. Tamaye*
ROBERT S. TAMAYE
Commissioner

By *Frederick P. Whittemore*
FREDERICK P. WHITTEMORE
Commissioner

PS Form 3811, July 1983
GPO - SP77-265 & SP80-347
DOMESTIC RETURN RECEIPT

● **SENDER: Complete items 1, 2, 3 and 4.**

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for service(s) requested.

1. ☒ Show to whom, date and address of delivery.

2. ☐ Restricted Delivery.

3. Article Addressed to:

Sidney Fuke

4. Type of Service:

☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number

667 903 418

Always obtain signature of addressee or agent and DATE DELIVERED.

5. Signature - Addressee

X

6. Signature - Agent

X

7. Date of Delivery

6/1/84

8. Addressee's Address (ONLY if requested and fee paid)

UNITED STATES POSTAL SERVICE

OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address, and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse.
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

**RETURN
TO**



State of Hawaii

LAND USE COMMISSION

Room 104, Old Federal Building

335 Merchant Street

Honolulu, Hawaii 96813

(Name of Sender)

(No. and Street, Apt., Suite, P.O. Box or R.D. No.)

(City, State, and ZIP Code)



PENALTY FOR PRIVATE
USE, \$300

P 667 903 418

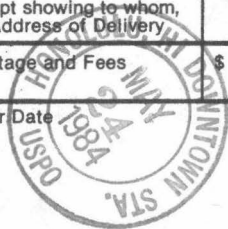
RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to	Sidney Fuke
Street and No.	
P.O., State and ZIP Code	
Postage	\$ 71
Certified Fee	.75
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	.60
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 70 6
Postmark or Date	

SP77-265 & SP80-347 - GEDCO
★ U.S.G.P.O. 1983-403-517
PS Form 3800, Feb. 1982



**STICK POSTAGE STAMPS TO ARTICLE TO COVER FIRST CLASS POSTAGE,
CERTIFIED MAIL FEE, AND CHARGES FOR ANY SELECTED OPTIONAL SERVICES. (see front)**

1. If you want this receipt postmarked, stick the gummed stub on the left portion of the address side of the article leaving the receipt attached and present the article at a post office service window or hand it to your rural carrier. (no extra charge)
2. If you do not want this receipt postmarked, stick the gummed stub on the left portion of the address side of the article, date, detach and retain the receipt, and mail the article.
3. If you want a return receipt, write the certified mail number and your name and address on a return receipt card, Form 3811, and attach it to the front of the article by means of the gummed ends if space permits. Otherwise, affix to back of article. Endorse front of article **RETURN RECEIPT REQUESTED** adjacent to the number.
4. If you want delivery restricted to the addressee, or to an authorized agent of the addressee, endorse **RESTRICTED DELIVERY** on the front of the article.
5. Enter fees for the services requested in the appropriate spaces on the front of this receipt. If return receipt is requested, check the applicable blocks in item 1 of Form 3811.
6. Save this receipt and present it if you make inquiry.

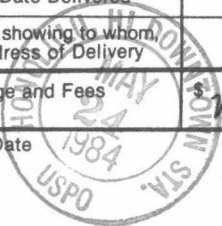
P 667 903 417

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to E. C. Craddick	
Street and No.	
P.O., State and ZIP Code	
Postage	\$ 71
Certified Fee	:75
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	.60
Return receipt showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	\$ 72.06
Postmark or Date	



PS Form 3800, Feb. 1982
VSP77-265 & SP80-347
J.S.G.P.O. 1983-403-517
GEDCO

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CERTIFIED MAIL FEE, AND CHARGES FOR ANY SELECTED OPTIONAL SERVICES. (see front)**

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2. ☐ Restricted Delivery.

3. Article Addressed to:

E. C. Craddick

4. Type of Service:

- ☐ Registered ☐ Insured
☒ Certified ☐ COD
☐ Express Mail

Article Number

667 903 417

Always obtain signature of addressee or agent and
DATE DELIVERED.

5. Signature — Addressee

X

6. Signature — Agent

X

7. Date of Delivery

MAY 25 1984

8. Addressee's Address (*ONLY if requested and fee paid*)

UNITED STATES POSTAL SERVICE

OFFICIAL BUSINESS

SENDER INSTRUCTIONS

Print your name, address, and ZIP Code in the space below.

- Complete items 1, 2, 3, and 4 on the reverse
- Attach to front of article if space permits, otherwise affix to back of article.
- Endorse article "Return Receipt Requested" adjacent to number.

**RETURN
TO**



State of Hawaii
LAND USE COMMISSION
Room 104, Old Federal Building
335 Merchant Street
Honolulu, Hawaii 96813

(Name of Sender)

(No. and Street, Apt., Suite, P.O. Box or R.D. No.)

(City, State, and ZIP Code)



PENALTY FOR PRIVATE
USE, \$300

BEFORE THE LAND USE COMMISSION
OF THE STATE OF HAWAII

In the Matter of the Petition)
to Amend Time Conditions and)
Consolidate Special Permits of) SP77-265 - GEOTHERMAL EXPLORATION
AND DEVELOPMENT
GEOTHERMAL EXPLORATION AND) CORPORATION
DEVELOPMENT CORPORATION)
_____)

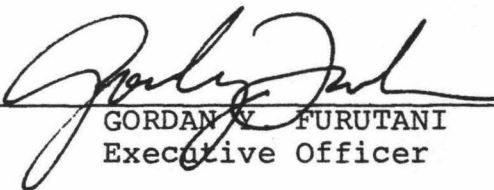
CERTIFICATE OF SERVICE

I hereby certify that a copy of the Land Use Commission's Decision and Order was served upon the following by either hand delivery or depositing the same in the U.S. Postal Service by certified mail:

SIDNEY FUKE, Planning Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

E. C. CRADDICK, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

DATED: Honolulu, Hawaii, this 24th day of May, 1984.



GORDAN V. FURUTANI
Executive Officer

SF77-265 - GEOTHERMAL EXPLORATION AND DEVELOPMENT CORPORATION

A certified copy of the Land Use Commission's Decision and Order was served by regular mail to the following on May 24, 1984.

KENT M. KEITH, Director
Department of Planning and Economic Development
State of Hawaii
250 South King Street
Honolulu, Hawaii 96813

ANNETTE CHOCK, Deputy Attorney General
Department of Attorney General
State Capitol, 4th Floor
Honolulu, Hawaii 96813

STEPHEN MENEZES, Corporation Counsel
Office of the Corporation Counsel
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

REAL PROPERTY TAX OFFICE
County of Hawaii
865 Piilani Street
Hilo, Hawaii 96720

REAL PROPERTY ASSESSMENT DIVISION
City and County of Honolulu
Mapping Section
Property Technical Office
Property Assessment Section
1188 Fort Street Mall
Honolulu, Hawaii 96813

OFFICE OF ENVIRONMENTAL QUALITY CONTROL
550 Halekauwila Street, Room 301
Honolulu, Hawaii 96813

DIVISION OF LAND MANAGEMENT
Department of Land and Natural Resources
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii 96813

January 19, 1984

Hawaii Planning Commission
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Attention: Mr. Sidney Fuke, Planning Director

Gentlemen:

At its meeting on January 17, 1984, the Land Use Commission voted to amend Geothermal Exploration & Development Corporation's request for a time extension, modification of conditions and the consolidation of all special permits existing under the name of Geothermal Exploration & Development Corporation for issue in the name of Barnwell Geothermal Corporation for SP77-265 and SP80-347.

Approval of the amendments are subject to the conditions imposed by the Hawaii County Planning Commission and the additional conditions of the Land Use Commission that the petitioner indemnify the Land Use Commission and the Commissioners, and hold them harmless pursuant to an agreement satisfactory to the Land Use Commission's counsel.

Please be advised that the petitioner's failure to comply with any of the delineated conditions of approval, particularly those relating to time, shall be reason for termination of the Special Permit. The Land Use Commission will not consider any request for time extension which is filed after the stipulated commencement or expiration dates.

The Land Use Commission's Decisions and Orders on SP77-265 - Geothermal Exploration & Development Corporation and SP80-347 - Geothermal Exploration & Development Corporation will be forwarded to you at a later date.

Sincerely,

GORDAN Y. FURUTANI
Executive Officer

GYF:gm

cc: E. C. Craddick, President
Barnwell Geothermal Corporation

STATE OF HAWAII
LAND USE COMMISSION

MEMORANDUM

TO: Land Use Commission DATE: January 17, 1984

FROM: Staff

SUBJECT: SP77-265 - Geothermal Exploration and Development
Corporation (Amendment of Conditions)

Geothermal Exploration and Development Corporation (GEDCO) has submitted a request to amend certain conditions relating to time and performance of Special Permit 77-265. Specifically, the request is for a time extension to complete its exploratory program, an increase in flexibility in conducting its drilling program and a consolidation of all special permits existing under the name of GEDCO for issue in the name of Barnwell Geothermal Corporation, its parent company.

This special permit allows the drilling of six exploratory geothermal wells on approximately 120 acres of land situated within the State Land Use Agricultural District at Opihikao, Puna, Hawaii. The subject property is located on the northwestern or Pahoehoe side of Opihikao Road, approximately 2.5 miles from the junction of Opihikao Road and the Pahoehoe-Kalapana Road and is identified as Tax Map Key 1-3-01: Portion of 24 and 25 (LUC Exhibit A).

Special Permit 77-265 was first approved by the LUC on July 14, 1977. The purpose of the exploratory well program is to assess the geothermal potential and ultimate development of geothermal energy. The petitioner has identified six possible drilling locations within the 120 acre subject site. The permit was granted with the condition that the drilling of the first well will commence within one year from the date of approval.

On February 9, 1979, the LUC approved GEDCO's request to extend the time condition for drilling the first well to July 14, 1979.

On September 7, 1979, the LUC approved another one-year extension for drilling the first well until July 14, 1980. At the same time the LUC also extended the life of the permit to July 14, 1981. The first well was completed in 1980.

On March 4, 1982, the LUC again approved an extension to the life of the permit until July 14, 1984 with the condition that the drilling of the second well commence within one year of the approval.

On July 29, 1983, the LUC denied a request to delete the time condition for the second well and extended the time condition deadline to March 4, 1984. The chart below summarizes the amendments for Special Permit 77-265:

LUC Decisions and Orders

Modification Approved

- | | |
|----------------------|--|
| 1. July 14, 1977 | Special Permit 77-265 approved (permit expires on July 14, 1980). |
| 2. February 9, 1979 | One-year time extension to commence drilling of first well by July 14, 1979. |
| 3. September 7, 1979 | One-year time extension to commence drilling of first well by July 14, 1980 (permit to expire on July 14, 1981). |
| 4. March 4, 1982 | Three-year time extension to the duration of the permit (to expire on July 14, 1984), commence drilling of second well by March 4, 1983. |
| 5. July 29, 1983 | One-year time extension to commence drilling of second well by March 4, 1984 (until July 14, 1984). |

Special Permit 77-265 is due to expire on July 14, 1984. GEDCO is now requesting that their special permits (SP77-265, SP80-347 and SP80-8) be consolidated and issued under the name of Barnwell Geothermal Corporation and with the following modifications to conditions relating to time restrictions:

- "a. Eliminate specific starting and completion times for drilling wells, and instead specify that a minimum of one new well be commenced each year.
- "b. Terms of Permit to be for four (4) years from time of approval (this approval will be required before December 16, 1983 to prevent lapse of Permit No. 471, unless interim extension granted to allow time for processing of consolidation).

"c. In place of needlessly restrictive time frames for the beginning and completion of wells, and as an offset to the additional time (four years) requested, we would agree to a termination of the consolidated permit once seven (7) successful wells have been drilled and tested. A successful well would be defined as having a tested capability of producing a minimum of 3 megawatts of electrical power (i.e., approximately equivalent to HGP-A)."

A public hearing on this permit and Special Permits 80-347 and 80-8 (less than 15 acres) was held by the Hawaii County Planning Commission on November 22, 1983. The Planning Commission voted to approve the request based on the following findings:

"The approval of the time extension request will not be contrary to the purpose and intent of the time condition. The purpose of stipulating time conditions is to assure that any proposed development come to fruition in a timely manner. In this particular case, the Special Permits have been granted to allow the drilling of exploratory geothermal wells for the purpose of assessing geothermal potential for the area. During the initial lifespan of the permits the petitioner has completed the drilling of three wells. These wells have not encountered sufficient permeability to be useful for flow tests. Furthermore, the drilling program encountered previously unexpected field conditions relating to extremely high temperatures which required modifications to casing materials and cementing procedures. The information contained from the initial drilling activity require more time to analyze and modifications to subsequent drilling programs which were not anticipated during the original planning for the permits. Consequently, a revised drilling program has been developed which requires additional time to collect and evaluate technical information to adequately determine the extent and capacity of the geothermal reservoir in the area.

"The work which has been completed to date represents a significant investment and clear commitment to conduct the activities allowed by the Special Permit.

"Approval of the four-year time extension will provide sufficient time for the petitioner to complete the exploration program in a safe and efficient manner. Furthermore, approval of the subject request will not alter the reasons for which the permit was originally approved nor increase any of the expected impacts of the project.

"The County of Hawaii has long been a supporter of geothermal development. Policies contained in the General Plan support this commitment. Actions such as the approval of several geothermal exploration programs through the Special Permit process and partial funding of the HGP-A program reflect the County's support and interest in geothermal development.

"At the same time, we are supportive of the orderly growth and development of this island. We are thus mindful of the need to assure that a development works for and not against the County. Care must therefore be taken to balance the social, economic, and environmental impacts of any development.

"There are certain land use activities that have been with us for a good number of years. These include housing, resort development, agriculture and recreation. Having been with us for decades, regulations have evolved and are already in place. Yet, as problems and/or different issues emerge, these regulations are amended or new ones are created to more accurately achieve the appropriate social, economic, and environmental balance.

"Geothermal development, while already practiced elsewhere, is relatively new here. Our knowledge and experience with geothermal development is understandably rather limited; but has increased tremendously since the first exploration permit was issued six years ago and will continue to grow and expand as geothermal activities move forward. Its infancy, to some extent, partially accounts for the absence of clear cut regulations and standards to guide its development while taking care of its "externalities" or off-site problems.

"We believe that geothermal development in the State at this stage is faced with a dilemma. On one hand, we have a policy desire and spirit to engage in a new field (geothermal); and on the other, its infancy contributes to the absence of comprehensive regulations. The regulations will invariably help shape and direct geothermal development; similarly, as geothermal activities occur, regulations will be shaped and re-shaped.

"It is within this framework that we are supportive of the petitioner's proposal. In the absence of comprehensive regulations governing geothermal development, we believe that a mutual spirit of give and take must be established to guide the continued efforts of exploratory drilling programs. As such, while we recommend approval of the request to extend the life of the permits and to grant additional flexibility in the drilling program, we are also taking this opportunity to recommend that additional conditions be imposed to reflect the increased body of knowledge which has been acquired since the existing conditions were adopted. It should be further noted that the number of wells allowed by each of the permits will remain the same."

Based on the foregoing, the Planning Commission further recommended that the permit be issued under the name of Barnwell Geothermal Corporation and that the following conditions be adopted, replacing those which are now in effect:

- "1. The petitioners, its successors or assigns shall be responsible for complying with all of the stated conditions of approval.
- "2. Prior to the commencement of any grubbing or grading activity, the petitioner shall:
 - a. Provide a metes and bounds description of the well site(s) and access road right-of-way(s) to the Planning Department;
 - b. Mark the boundaries of the designated well site(s), and the access road right-of-way(s), and no construction or transportation equipment shall be permitted beyond the prescribed boundaries of the said well site(s) and road right-of-way(s);
 - c. Conduct an archaeological reconnaissance survey for the proposed well site(s) and access road right-of-way(s) and submit it to the County Planning Department for review; and
 - d. Comply with all requirements of the County grading ordinance.
- "3. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or its designee a noise monitoring plan to be implemented when the well drilling and testing period begins. This plan should allow the coordination of noise complaints with noise measurements, the meteorological conditions, and the type of operations which occurred at the well site. The data obtained shall be available upon request by the appropriate governmental agencies including the Planning Department. The noise monitoring program shall be in operation during all active phases of the project.
- "4. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or designee an air quality monitoring plan to be implemented when the well drilling period begins. The plan shall include provisions for installation, calibration, maintenance and operation of recording instruments to measure air contaminant concentrations. The specific elements to be monitored, the number of stations involved and the frequency of sampling and reporting shall be specified by the Planning Department or its designee. The air quality monitoring program shall be in operation during all phases of the project.
- "5. Prior to any drilling activity the petitioner shall submit and secure approval from the Hawaii County Civil Defense Agency a plan of action to deal with emergency

situations which may threaten the health, safety and welfare of the employees/persons in the vicinity of the proposed project. The plan shall include procedures to facilitate coordination with appropriate State and County officials as well as the evacuation of affected individuals.

- "6. The petitioner shall maintain a record in a permanent form suitable for inspection and shall make such record available on request to the Planning Department or its designee. The record shall include:
 - a. Occurrence and duration of any start-up, shut-down and operation mode of any well/facility.
 - b. Performance testing, evaluation, calibration checks and adjustment and maintenance of the continuous emission monitor(s) that have been installed.
 - c. Emission measurements reported in units compatible with applicable standards/guidelines.
- "7. The petitioner, its successors or assigns shall apply the "Best Available Control Technology" (BACT) with respect to geothermal emissions during all phases of the project, including well drilling and testing. "Best available control technology" means the maximum degree of control for noise and air quality concerns taking into account what is known to be practical but not necessarily in use. BACT shall be determined by the Planning Department in consultation with other appropriate governmental agencies involved in the control or regulation of geothermal development. Compliance with applicable noise and air quality regulations or guidelines shall be deemed to meet the BACT requirement. Should it be determined that BACT is not being employed, the Planning Department is authorized to take any appropriate action including suspension of any further activities at the project site or referral of the matter to the Planning Commission for review and disposition.
- "8. Unabated open venting of geothermal steam shall be prohibited unless prior approval is received from the Planning Department or its designee. The Planning Department or its designee shall permit unabated open venting only when all other reasonable alternatives have been deemed to be unacceptable. Venting for all other situations shall be permitted only when accompanied by appropriate sound and chemical abatement techniques approved by the Planning Department or its designee.
- "9. The petitioner shall provide, install, calibrate, maintain and operate a meteorological station and conduct

continuous meteorological monitoring at the site or at another location as may be mutually agreed to by the petitioner and the Planning Department. The data shall be provided in a format agreeable to the Planning Department on a monthly basis and shall include temperature, wind velocity, wind direction and other information deemed necessary by the Planning Department.

- "10. The petitioner shall publish a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drill site, 25 hours a day, to respond to any local complaints.
- "11. The petitioner shall submit a status report to the Planning Department on a biannual basis (by the first day of January and July of each year), or, within 30 days of the completion of any exploratory well. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including drilling activity report;
 - b. A description of the work being proposed over the next reporting period;
 - c. The results of the environmental/noise monitoring activities;
 - d. A log of the complaints received and the responses thereto;
 - e. The current status of exploration activities in the context of long-range development goals; and
 - f. Any other information that the Planning Department may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.
- "12. Until such time as noise regulations are adopted by the State or County, the petitioner shall comply with the following guidelines which shall be enforced by the Planning Department:
 - a. A general noise level of 55 dba during daytime and 45 dba at night shall not be exceeded except as allowed under b and c. For the purposes of these guidelines, night is defined as the hours between 7:00 p.m. and 7:00 a.m.;
 - b. The allowable noise levels may be exceeded by a maximum of 10 dba; however, in any event, the

generally allowed noise level should not be exceeded more than 10% of the time within any 20 minute period;

- c. The noise level guidelines may be waived only for the specified duration of authorized open venting periods;
 - d. The noise level guidelines shall be applied at the existing residential receptors which may be impacted by the geothermal operation; and
 - e. Sound level measurements shall be conducted using standard procedures with sound level meters using the "A" weighting and "slow" meter response unless otherwise stated.
- "13. A disposal site or sites, approved by the State Department of Health, shall be provided for sump contents and other waste materials to be disposed of from the drilling activity.
- "14. All sumps/ponds shall be purged in a manner meeting with the approval of the State Department of Health.
- "15. When wells are completed or abandoned, all denuded areas on and around the drilling site shall be revegetated in a manner meeting with the approval of the Planning Department.
- "16. The petitioner shall grant unrestricted access of the subject property(ies) to authorized governmental representatives or to consultants or contractors hired by governmental agencies for inspection, enforcement, or monitoring activities. A designated employee shall be available at all times for purposes of supplying information and responses deemed necessary by the authorized governmental representative in connection with such work.
- "17. The petitioner will drill at least one new exploratory well each year either under this permit or under other such permits held by the petitioner.
- "18. The petitioner shall comply with the requirements of Chapter 14, Article 9 of the Hawaii County Code, relating to outdoor lighting.
- "19. This special permit shall be effective until December 31, 1987, or upon the successful completion of 3 exploratory wells, whichever occurs sooner. Successful, for the purposes of this condition, is defined as having a field tested capacity of 3 megawatts each.

"20. All other applicable rules, regulations and requirements, including those of the State Department of Health and the State Department of Land and Natural Resources shall be complied with."

The complete record of Special Permit 77-265 was received at the LUC office on December 19, 1983. The following materials are attached for your information: Special permit application for consolidation of existing special permits with attached correspondence letters and project descriptions, special permit application for time extension and petitioner's proposed conditions, letter of November 15, 1983 requesting permits to be transferred to Barnwell Geothermal Corporation and attached statement of GeothermEx, Inc., County of Hawaii Planning Department's Consolidated Background and Consolidated Findings on SP77-265, SP80-347 and SP80-8, transcript of the Hawaii Planning Commission public hearing held on November 22, 1983 and a copy of the certified letter to E. C. Craddick from the Chairman of the Planning Commission dated November 28, 1983.

CERTIFIED MAIL

November 28, 1983

Mr. E. C. Craddick
Geothermal Exploration and
Development Corporation
2828 Pea Street, Suite 2085
Honolulu, HI 96819

Dear Mr. Craddick:

Amendment to Special Permit No. 364
IMK: 1-3-01:Portion of 24 and 25

The Planning Commission at its July held public hearing on November 22, 1983, considered the amendment to Special Permit No. 364, at Opihikao, Puna, Hawaii.

The Commission voted to forward a favorable recommendation to the Land Use Commission for the above-stated amendment, based on the following findings:

The approval of the time extension request will not be contrary to the purpose and intent of the time condition. The purpose of stipulating time conditions is to assure that any proposed development come to fruition in a timely manner. In this particular case, the Special Permits have been granted to allow the drilling of exploratory geothermal wells for the purpose of assessing geothermal potential for the area. During the initial lifespan of the permits the petitioner has completed the drilling of three wells. These wells have not encountered sufficient permeability to be useful for flow tests. Furthermore, the drilling program encountered previously unexpected field conditions relating to extremely high temperatures which required modifications to casing materials and cementing procedures. The information obtained from the initial drilling activity required more time to analyze and

EXHIBIT I

November 28, 1983

modifications to subsequent drilling programs which were not anticipated during the original planning for the permits. Consequently, a revised drilling program has been developed which requires additional time to collect and evaluate technical information to adequately determine the extent and capacity of the geothermal reservoir in the area..

The work which has been completed to date represents a significant investment and clear commitment to conduct the activities allowed by the Special Permit.

Approval of the four-year time extension will provide sufficient time for the petitioner to complete the exploration program in a safe and efficient manner. Furthermore, approval of the subject request will not alter the reasons for which the permit was originally approved nor increase any of the expected impacts of the project.

The County of Hawaii has long been a supporter of geothermal development. Policies contained in the General Plan support this commitment. Actions such as the approval of several geothermal exploration programs through the Special Permit process and partial funding of the HGP-A program reflect the County's support and interest in geothermal development.

At the same time, we are supportive of the orderly growth and development of this island. We are thus mindful of the need to assure that a development works for and not against the County. Care must therefore be taken to balance the social, economic, and environmental impacts of any development.

There are certain land use activities that have been with us for a good number of years. These include housing, resort development, agriculture and recreation. Having been with us for decades, regulations have evolved and are already in place. Yet, as problems and/or different issues emerge, these regulations are amended or new ones are created to more accurately achieve the appropriate social, economic, and environmental balance.

Geothermal development, while already practiced elsewhere, is relatively new here. Our knowledge and experience with geothermal development is understandably rather limited; but has increased tremendously since the first exploration permit was issued six years ago and will continue to grow and expand as geothermal activities move forward. Its infancy, to some extent, partially accounts for the absence of clear cut regulations and standards to guide its development while taking care of its "externalities" or off-site problems.

We believe that geothermal development in the State at this stage is faced with a dilemma. On one hand, we have a policy desire and spirit to engage in a new field (geothermal); and on

November 28, 1983

the other, its infancy contributes to the absence of comprehensive regulations. The regulations will invariably help shape and direct geothermal development; similarly, as geothermal activities occur, regulations will be shaped and re-shaped.

It is within this framework that we are supportive of the petitioner's proposal. In the absence of comprehensive regulations governing geothermal development, we believe that a mutual spirit of give and take must be established to guide the continued efforts of exploratory drilling programs. As such, while we recommend approval of the request to extend the life of the permits and to grant additional flexibility in the drilling program, we are also taking this opportunity to recommend that additional conditions be imposed to reflect the increased body of knowledge which has been acquired since the existing conditions were adopted. It should be further noted that the number of wells allowed by each of the permits will remain the same.

Based on the foregoing, the Commission further recommended that the permit be issued under the name of Farnwell Geothermal Corporation and that the following set of conditions be adopted, replacing those which are now in effect:

1. The petitioners, its successors or assigns shall be responsible for complying with all of the stated conditions of approval.
2. Prior to the commencement of any grubbing or grading activity, the petitioner shall:
 - a. Provide a metes and bounds description of the well site(s) and access road right-of-way(s) to the Planning Department;
 - b. Mark the boundaries of the designated well site(s), and the access road right-of-way(s), and no construction or transportation equipment shall be permitted beyond the prescribed boundaries of the said well site(s) and road right-of-way(s);
 - c. Conduct an archaeological reconnaissance survey for the proposed well site(s) and access road right-of-way(s) and submit it to the County Planning Department for review; and
 - d. Comply with all requirements of the County grading ordinance.
3. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or its designee a noise monitoring plan to be implemented when the

well drilling and testing period begins. This plan should allow the coordination of noise complaints with noise measurements, the meteorological conditions, and the type of operations which occurred at the well site. The data obtained shall be available upon request by the appropriate governmental agencies including the Planning Department. The noise monitoring program shall be in operation during all active phases of the project.

4. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or designee an air quality monitoring plan to be implemented when the well drilling period begins. The plan shall include provisions for installation, calibration, maintenance and operation of recording instruments to measure air contaminant concentrations. The specific elements to be monitored, the number of stations involved and the frequency of sampling and reporting shall be specified by the Planning Department or its designee. The air quality monitoring program shall be in operation during all phases of the project.
5. Prior to any drilling activity the petitioner shall submit and secure approval from the Hawaii County Civil Defense Agency a plan of action to deal with emergency situations which may threaten the health, safety and welfare of the employees/persons in the vicinity of the proposed project. The plan shall include procedures to facilitate coordination with appropriate State and County officials as well as the evacuation of affected individuals.
6. The petitioner shall maintain a record in a permanent form suitable for inspection and shall make such record available on request to the Planning Department or its designee. The record shall include:
 - a. Occurrence and duration of any start-up, shut-down and operation mode of any well/facility.
 - b. Performance testing, evaluation, calibration checks and adjustment and maintenance of the continuous emission monitor(s) that have been installed.
 - c. Emission measurements reported in units compatible with applicable standards/guidelines.
7. The petitioner, its successors or assigns shall apply the "Best Available Control Technology" (BACT) with respect to geothermal emissions during all phases of the project, including well drilling and testing. "Best available control technology" means the maximum degree of control for noise and air quality concerns taking into account what is known to be practical but not necessarily in use. BACT

shall be determined by the Planning Department in consultation with other appropriate governmental agencies involved in the control or regulation of geothermal development. Compliance with applicable noise and air quality regulations or guidelines shall be deemed to meet the BACT requirement. Should it be determined that BACT is not being employed, the Planning Department is authorized to take any appropriate action including suspension of any further activities at the project site or referral of the matter to the Planning Commission for review and disposition.

8. Unabated open venting of geothermal steam shall be prohibited unless prior approval is received from the Planning Department or its designee. The Planning Department or its designee shall permit unabated open venting only when all other reasonable alternatives have been deemed to be unacceptable. Venting for all other situations shall be permitted only when accompanied by appropriate sound and chemical abatement techniques approved by the Planning Department or its designee.
9. The petitioner shall provide, install, calibrate, maintain and operate a meteorological station and conduct continuous meteorological monitoring at the site or at another location as may be mutually agreed to by the petitioner and the Planning Department. The data shall be provided in a format agreeable to the Planning Department on a monthly basis and shall include temperature, wind velocity, wind direction and other information deemed necessary by the Planning Department.
10. The petitioner shall publish a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drill site, 24 hours a day, to respond to any local complaints.
11. The petitioner shall submit a status report to the Planning Department on a biannual basis (by the first day of January and July of each year), or, within 30 days of the completion of any exploratory well. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including drilling activity report;
 - b. A description of the work being proposed over the next reporting period;
 - c. The results of the environmental/noise monitoring activities;

- d. A log of the complaints received and the responses thereto;
 - e. The current status of exploration activities in the context of long-range development goals; and
 - f. Any other information that the Planning Department may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.
12. Until such time as noise regulations are adopted by the State or County, the petitioner shall comply with the following guidelines which shall be enforced by the Planning Department:
- a. A general noise level of 55 dba during daytime and 45 dba at night shall not be exceeded except as allowed under b and c. For the purposes of these guidelines, night is defined as the hours between 7:00 p.m. and 7:00 a.m.;
 - b. The allowable noise levels may be exceeded by a maximum of 10 dba; however, in any event, the generally allowed noise level should not be exceeded more than 10% of the time within any 20 minute period;
 - c. The noise level guidelines may be waived only for the specified duration of authorized open venting periods;
 - d. The noise level guidelines shall be applied at the existing residential receptors which may be impacted by the geothermal operation; and
 - e. Sound level measurements shall be conducted using standard procedures with sound level meters using the "A" weighting and "slow" meter response unless otherwise stated.
13. A disposal site or sites, approved by the State Department of Health, shall be provided for sump contents and other waste materials to be disposed of from the drilling activity.
14. All sumps/ponds shall be purged in a manner meeting with the approval of the State Department of Health.
15. When wells are completed or abandoned, all denuded areas on and around the drilling site shall be revegetated in a manner meeting with the approval of the Planning Department.
16. The petitioner shall grant unrestricted access of the subject property(ies) to authorized governmental

Mr. E. C. Craddock

Page 7

November 28, 1983

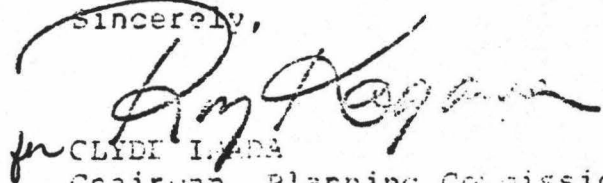
representatives or to consultants or contractors hired by governmental agencies for inspection, enforcement, or monitoring activities. A designated employee shall be available at all times for purposes of supplying information and responses deemed necessary by the authorized governmental representative in connection with such work.

17. The petitioner will drill at least one new exploratory well each year either under this permit or under other such permits held by the petitioner.
18. The petitioner shall comply with the requirements of Chapter 14, Article 9 of the Hawaii County Code, relating to outdoor lighting.
19. This special permit shall be effective until December 31, 1987, or upon the successful completion of 3 exploratory wells, whichever occurs sooner. Successful, for the purposes of this condition, is defined as having a field tested capacity of 3 megawatts each.
20. All other applicable rules, regulations and requirements, including those of the State Department of Health and the State Department of Land and Natural Resources shall be complied with.

Should any of the foregoing conditions not be met, the permit shall be automatically void.

Should you have any questions, please feel free to contact the Planning Department at 961-8288.

Sincerely,


CLYDE I. IWATA

Chairman, Planning Commission

cc: DPED, Land Use Division
Building Division, Public Works
Dept. of Water Supply
Bill Tam, Deputy Attorney General

bcc: Plan Approval Section

Attachments for LUC Staff Reports:

SP77-265 and SP80-347

GEOHERMAL EXPLORATION AND DEVELOPMENT CORPORATION

BARNWELL GEOTHERMAL CORPORATION

September 28, 1983

Mr. Sidney M. Fuke, Director
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Consolidated Geothermal Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364), & SP80-8 (LUC-471)

Dear Mr. Fuke:

In response to your letter of September 12, 1983, we are enclosing herewith our formal application for a consolidation of all our existing Special Use Permits, to be issued in the name of Barnwell Geothermal Corporation rather than Geothermal Exploration & Development Corp., (now a wholly owned subsidiary of Barnwell).

This application also requests a modification of conditions relating to time restrictions as follows:

- a. Eliminate specific starting and completion times for drilling wells, and instead specify that a minimum of one new well be commenced each year.
- b. Terms of Permit to be for four (4) years from time of approval (this approval will be required before December 16, 1983 to prevent lapse of Permit No. 471, unless interim extension granted to allow time for processing of consolidation).
- c. In place of needlessly restrictive time frames for the beginning and completion of wells, and as an offset to the additional time (four years) requested, we would agree to a termination of the consolidated permit once seven (7) successful wells have been drilled and tested. A successful well would be defined as having a tested capability of producing a minimum of 3 megawatts of electrical power (i.e. approximately equivalent to HGP-A).

The consolidation of these permits would also give the Planning Commission and Land Use Commission an opportunity to make conditions of all our existing permits uniform, in other respects, with the benefit of a background of almost six (6) years experience since the first permit was issued in July 14, 1977.

EXHIBIT A

All previous supporting data, site plans, locations remain as before under the existing permits and in the interests of redundancy are not repeated in this application with the exception of the additional information which you require as follows:

1. Previously unexpected field conditions relate to the effects of extremely high temperatures encountered prior to and after penetrating potential geothermal zones. Casing materials and cementing procedures have been modified and upgraded to hopefully offset this problem, although this will not be proven until we have successfully completed at least one (1) well in this manner.
2. It is not yet possible to indicate "the most promising area" as this must depend upon the results of drilling and testing programs. The best indications are provided by findings of other drilling programs such as Puna Ventures and HGP-A, and their possible geothermal inter-relation with our wells.

At present our efforts are therefore concentrated in the Lanipuna and Daiichi area, and wells being planned are in effect step-out wells from the HGP-A location.

3. The immediate plan is to drill on Lanipuna Well Site No. 6, however, commencement has been delayed pending the Attorney General's opinion on Act 296.

We would then plan to drill an offset well at Daiichi Well Site No. 1, and then continue a series of offset wells to both Lanipuna No. 6 and Daiichi No. 1 to attempt to define the perimeter of the reservoir as it relates to our prospects.

If and when such efforts appears unsuccessful in that area, we would plan further drilling at Opihikao.

It is also possible that after drilling four or five successful wells in the Lanipuna and Daiichi area, that we would then move to prove out the Opihikao area. This future decision would depend upon findings up to that time, as well as the market and the necessity of moving quickly into a development program to meet such market demand.

Flexibility is therefore a key ingredient in conducting an exploratory program with an optimum of economy.

Mr. Sidney M. Fuke, Director
Planning Department

September 28, 1983
Page Three

4. Our anticipated development plans must await the outcome of our exploratory program and would entirely depend upon a cost effective commercialization of such findings.

It is our hope that we could develop from our present prospect a minimum of 25 megawatts within five to seven years, with a potential for at least 100 megawatts within fifteen years. This could represent a significant inflow of cash to the Big Island, on the average of \$5,000,000 to \$10,000,000 per year for wells and plants construction during the development stage.

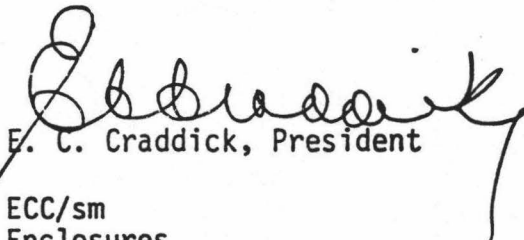
5. Over the past three (3) years, we have trained approximately fifteen local employees as full time drilling rig workers, receiving an average of \$12.00 to \$15.00 per hour, now constituting approximately 75% of our geothermal crews. This could be increased during a development program where several rigs would likely be used rather than the one we are using now.

Our rationale for requesting this consolidation was submitted to you on July 19, 1983, this letter and following exchanges between us can be incorporated as a supplement to this application if you wish, (copy of these letters included herewith).

Your early attention to this would be appreciated, as the existing termination date of December 16, 1983 will jeopardize the continuation of our Lanipuna Drilling Program.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION


E. C. Craddick, President

ECC/sm
Enclosures

cc: M. Kinzler
J. S. Barnwell, Jr.
D. J. Otwell
S. Eisenstat
A. Blumenthal
J. Clark
B. Craddick
V. Yamanaka
M. Gardner

Prospects for which consolidation of existing Special Use Permits and modification of conditions are requested:

1. Opihikao/Ashida Prospect

Tax Map Key: 1-3-1: Portions of 24 and 25

Special Use Permit No. 77-265 (LUC 364)

Present Termination Date: July 14, 1984

Six wells sites (one drilled)

Total Acreage: 118.180

Owner: Vern Yamanaka/Harold Ashida

2. Lanipuna Prospect

Tax Map Key: 1-3-8:6, 7, 19 and 1-3-9: Portion of 7

Special Use Permit No. 80-8 (LUC 471)

Present Termination Date: December 16, 1983

Six well sites (one drilled and redrilled)

Total Acreage: 12 acres (6 sites @ 2 acres each)

Owner: J. T. Trading Co., Ltd. and Auto Imports of Hawaii, Inc.

3. Daiichi Prospect

Tax Map Key: 1-4-2:10

Special Use Permit No. 80-347 (LUC 460)

Present Termination Date: February 10, 1984

Nine well sites (one site prepared only)

Total Acreage: 180.475

Owner: Daiichi Seiko of Hawaii, Inc.

APPLICATION FOR SPECIAL PERMIT
COUNTY OF HAWAII
PLANNING DEPARTMENT - PLANNING COMMISSION

APPLICANT: BARNWELL GEOTHERMAL CORPORATION

APPLICANT'S SIGNATURE: E. C. Craddick, President

ADDRESS: 2828 Paa Street, Suite 2085

Honolulu, Hawaii 96819

TELEPHONE: (808) 839-7727

TAX MAP KEY: See details attached AREA: See details attached
(Size of Parcel)

OWNER: (Remains the same as in the existing Special use Permits)

OWNER'S SIGNATURE: (Remains the same as in the existing Special use Permits)

APPLICANT'S INTEREST, IF NOT OWNERS: Applicant holds geothermal leases.

REQUESTED USE: Consolidation and modification of conditions for existing
Special Use Permits providing for geothermal exploration.

APPLICANT'S REASON(S) FOR REQUESTING SPECIAL PERMIT: *(Please attach)*
(SAME AS PREVIOUSLY SUBMITTED)

NOTE: The applicant must show that:

- (a) such use shall not be contrary to the objectives sought to be accomplished by the Land Use Law and Regulations;
- (b) the desired use shall not adversely affect surrounding properties;
- (c) such use shall not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage, school improvements, and police and fire protection;
- (d) unusual conditions, trends, and needs have arisen since the district boundaries and regulations were established;
- (e) the land upon which the proposed use is sought is unsuited for the uses permitted within the district;
- (f) the proposed use will not substantially alter or change the essential character of the land and the present use; and
- (g) the request will not be contrary to the General Plan and official Community Development Plan and other documents such as Design Plans.

THIS APPLICATION MUST BE ACCOMPANIED BY:

- (a) 16 copies of the completed application form with attachments.
- (b) 16 copies of a location map. (SAME AS PREVIOUSLY SUBMITTED)
- (c) 16 copies of a site plan with existing and proposed uses. (SAME AS PREVIOUSLY SUBMITTED)
- (d) any additional information. (SEE COVER LETTER)
- (e) \$100.00 processing fee.
- (f) One (1) copy of full-size site plan drawn to scale. Site plan should include property lines, reference points (roadways, shoreline, etc.), and existing and proposed structures and uses. Site plan shall be 2 feet by 3 feet in size at a minimum. (AS BEFORE)



PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

HERBERT T. MATAYOSHI
Mayor

COUNTY OF
HAWAII

SIDNEY M. FUKU
Director

DUANE KANUHA
Deputy Director

September 12, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

Dear Mr. Craddick:

Consolidated Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364) & SP80-8 (LUC-471)

Thank you for your letter of August 25, 1983. Rather than continue this exchange of correspondence it appears to be more expedient for your request to consolidate your Special Permits to be placed before the County's Planning Commission and possibly the State Land Use Commission as early as possible.

Please complete the attached application and submit it to us at your convenience. For the "additional information" please submit a revised exploratory drilling program showing:

1. How the problems from "previously unexpected field conditions" (which has delayed your program) will be met with your revised materials and procedures.
2. Where your "most apparently promising area" is and a drilling schedule confirming this hypothesis along with a schedule for drilling the second and third exploratory wells to help define the perimeter of the reservoir if the first well is "successful." If the first well (from present day) is not "successful" then your schedule for drilling the second "most apparently promising area" as well as the sites and schedule for wells which must then be drilled for reservoir perimeter definition.

RECEIVED
SEP 14 1983

WATER RESOURCES
INTERNATIONAL, INC.

Mr. E. C. Craddick, President .

Page 2

September 12, 1983

3. Please submit copies of your drilling reports to the Board of Land and Natural Resources for Ashida No. 1 and Lanipuna No. 1. We understand that the records for redrilling of Lanipuna No. 1 may still be kept confidential.
4. Your currently anticipated development plans based upon the completion of an exploratory program that confirms the presense of a geothermal resource on your properties.

Should you have any questions, please contact us.

Sincerely,



SIDNEY FUKU
DIRECTOR

RN:lgv

Enclosure

fol -
Please call me
for clarification
if you want to.
fol

BARNWELL GEOTHERMAL CORPORATION

August 25, 1983

Mr. Sidney M. Fuke
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Consolidated Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364) & SP80-8 (LUC-471)
Your letter dated August 22, 1983.

Dear Mr. Fuke:

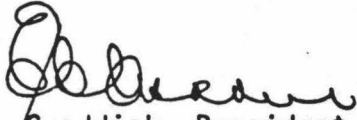
In reply to your question raised in the above referenced letter, we wish to advise as follows:

1. The "unexpected field conditions" refer to unanticipated effects of very high temperatures encountered necessitating a revision in the materials and procedures previously used.
2. We must plan for the complete exploration and evaluation of all our projects, Lanipuna, Daiichi and Ashida, however, in the course of this work we will have to be prepared to direct our concentration to the most apparently promising area, in order to provide for early enough development to meet market demands and to initiate plans for collecting systems and plant locations.
3. The locations and ownership of a power generating plant cannot be determined until more exploratory drilling is done. Among other things we must first determine the perimeters of any reservoir and the effects of topography. A plant will probably be located nearest a cluster of good geothermal wells - wherever that may be. Wells of different developers could also conceivably be pooled to feed a common plant.

4. Our previous letter (paragraphs 4 and 5) expresses a common known concern, but is not intended as representing other developers. Barnwell intends to act independently and will not suspend its operations as a consequence of what other developers may do.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

ECC/mc

cc: Morton Kinzler
Samuel Eisenstat
Jim Barnwell
Bill Craddick
Murray Gardner



PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 98720

COUNTY OF
HAWAII

HERBERT T. MATAYOSHI
Mayor

SIDNEY M. FUKU
Director

DUANE KANUHA
Deputy Director

August 22, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

Dear Mr. Craddick:

Consolidated Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364) & SP80-8 (LUC-471)

We have received your letter of August 12, 1983. We also received from HECO an announcement that addendum No. 2 to their Geothermal-Electric Power Development RFP will be issued shortly (enclosed). We are still awaiting the Attorney General's opinion.

In your response item No. 4 you cite the need to revise HECO's timetable "due to unexpected field conditions." Your initial exploration program was designed to meet some development objective based upon other factors such as financing and "expected field conditions." If you would amplify on the specifics of "unexpected field conditions" we may have a better understanding of both your exploration and development objectives/program.

Before we can make a recommendation to the Planning Commission we must be able to reasonably defend your program(s). Should your permits be consolidated do we assume your exploratory program to continue until the entire Lanipuna, Ashida and Daiichi series have been completely drilled to then select the optimum development site or would you intensify exploring a particular locale once the first "successful" well is located to meet HECO's contract requirements? Does your current development plan include the possibility of steam from Lanipuna, Daiichi and Ashida wells being transported to a "central" power plant?

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AUG 24 1983

WATER RESOURCES
INTERNATIONAL, INC.

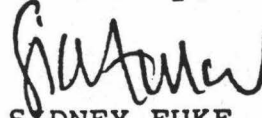
Mr. E. C. Craddick, President
Page 2
August 22, 1983

Your response items 4 and 5 implies that you are representing the interests of all geothermal developers in Hawaii. Can we assume that if Puna Geothermal Ventures or Campbell Estates/True-Mid Pacific Geothermal were to suspend operations for any reason, Barnwell Geothermal Corporation would also be forced to suspend operations?

Again we reiterate that the County of Hawaii is especially interested in the development of the geothermal resource. It is imperative that we operate under a mutually cooperative spirit to bring this into fruition.

Should you have any questions, please contact us.

Sincerely,

A handwritten signature in dark ink, appearing to read "Sidney Fuke", written in a cursive style.

SIDNEY FUCE
Planning Director

RN:lgv

Enclosure

BARNWELL GEOTHERMAL CORPORATION

August 12, 1983

Mr. Sidney M. Fuke
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Consolidated Exploratory Drilling Program
SP80-347 (LUC 460), SP77-265 (LUC 364), & SP80-8 (LUC 471)

Dear Mr. Fuke:

Thank you for your response of 9 August 1983. Our reply to your questions in the order asked is as follows:

1. We are aware that the final decision is to be made by the Land Use Commission, following the hearing and recommendation of your planning commission.
2. There will be no problem on consolidation of permits as far as permittees are concerned.
3. We are agreeable to the same criteria for successful wells as would apply under Condition #9 of the Special Use Permit 80-347, issued February 10, 1981, wherein it was stipulated that "upon discovery of three successful wells, all further exploratory drilling shall immediately cease", with no specific quantities mentioned.
4. It is our understanding that H.E.C.O. is aware of the necessity of revising their timetable to adjust to the realities of the developers' geothermal programs, which have all been delayed and revised, due to unexpected field conditions.
5. The Attorney General's opinion of S. B. 903 (Act 296) is also of interest to us as we are assuming that the intent of the grandfather clause is to cover any existing Special Use Permits. If this was not so the whole geothermal effort in Hawaii would come to a halt and the future of geothermal be placed in dire jeopardy.

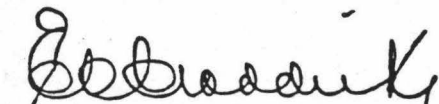
Mr. Sidney M. Fuke
Planning Department

August 12, 1983
Page 2

Please advise when you are in a position to consider our request. As you know the existing permits begin expiring in December 1983, and we would need a decision before that time if we expect to keep our geothermal program alive.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION


E. C. Craddick, President

cc: Morton Kinzler
Samuel Eisenstat
Jim Barnwell
Bill Craddick
Murry Gardner



PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

COUNTY OF
HAWAII

HERBERT T. MATAYOSHI
Mayor

SIDNEY M. FUKU
Director

DUANE KANUHA
Deputy Director

August 9, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, HI 96819

Dear Mr. Craddick:

Consolidated Exploratory Drilling Program
SP80-347 (LUC 460), SP77-265 (LUC 364), & SP80-8 (LUC 471)

We are responding to your inquiry of July 19, 1983 requesting that "all existing permits be lumped together and extended for a period of four (4) years from present termination dates, without specifying any order of work." This request coupled with your rationale raises the following:

1. ³⁴⁷ SP80-457 (LUC 460) and SP77-265 (LUC 364) are both issued by the State's Land Use Commission (LUC) and SP80-8 (LUC 471) was issued by the County's Planning Commission. The total surface area of land covered by these three special permits exceeds fifteen acres, thus the question of consolidating the permits into one must be decided by the LUC.
2. SP80-347 (LUC 460) and SP77-265 (LUC 364) are both issued to Geothermal Exploration and Development Company while SP80-8 (LUC 471) is issued to Barnwell Geothermal Corporation. The proposed consolidation of permits must be done with the concurrence of both permittees.
3. You state that a "meaningful exploratory program...requires the completion of at least seven (7) successful wells as follows: Opihikao/Ashida Prospect 2 wells, Daiichi Prospect 2 wells, and Lanipuna Prospect 3 wells." You further define "successful wells" to mean "tested a minimum of 3 megawatts each." At this time, with so little data on the reservoir(s) such a definition of "successful wells" may be premature. In theory, with an exploratory program, each well adds to the body of knowledge regarding the

Mr. E. C. Craddick, President
Page 2
August 9, 1983

resource(s). This stipulation suggests that your exploratory program is designed to meet some predetermined development objective. What your development objective is at this time remains unclear.

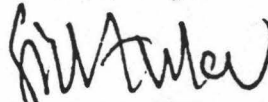
4. The estimated "time requirement of at least four (4) years to accomplish a minimum program of 7 wells" will take you into 1987-1988 to complete your exploratory program. We also understand your company responded to HELCO's Request for Proposals (RFP) for Geothermal Power Development (as added of April 23, 1981). It appears that your meeting HELCO's timetable will be compromised by your amended exploratory program. Again your development objective appears to have changed from the representations made for each special permit application.
5. With regard to S.B. 903 (now Act 296, SLH 1983), it is our understanding that the State Attorney General's opinion has been requested on questions similar to those you present. This opinion should provide us with further insight.

The development of the geothermal resource is an objective desired by many, especially the County of Hawaii. Exploration and development costs being as high as they are, mandate a very well planned and managed approach involving both the private and public sectors. It is imperative that all parties involved operate under a mutually cooperative spirit to bring this desire into fruition.

In that spirit, and in trying to respond to your request, we find that some direct responses from Hawaii Electric Light Company, the Land Use Commission, and the State's Attorney General are needed first. Further, your letter concurrently raises questions which only you can answer. As such, until all of that information is available, it is difficult for us to consider the propriety of your request at this time.

Should you have any questions, please do not hesitate to contact our office at 961-8288.

Sincerely,



SIDNEY FUKE
Planning Director

RN/SF:gs

cc: Morton Kinzler
Samuel Eisenstat
Jim Barnwell
Bill Craddick
Murry Gardner

July 19, 1983

Mr. Sidney Fuke, Director
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Special Use Permits for a Consolidated
Exploratory Drilling Program

Dear Mr. Fuke:

A meaningful exploratory program on our three leases requires the completion of at least seven (7) successful wells as follows:

Opihikao/Ashida Prospect	2 Wells
Daiichi Prospect	2 Wells
Lanipuna Prospect	3 Wells

We have only drilled four (4) geothermal wells in the last forty (40) months, two for us and two for Thermal Power Company, using our drilling rig. Most of the wells need reworking, perhaps as much as two months each. This means, the Exploratory Program 1980-83 will yield at best one or two successfully completed exploratory geothermal wells.

In retrospect, this means that time limitations heretofore placed on the Special Use Permits have been much too restrictive. Without recognizing this, and without allowing for realistic time, we will be constantly applying for extensions in order to keep our geothermal program alive to conform to the drilling requirements of our lease agreements.

We must also assume that our rig will be needed by Thermal Power Company (Puna Ventures) for at least one and possibly two more wells in the next year or two.

Assuming that some of the past construction problems are solved, we would expect to improve the past average rate of one well per year to two wells per year. This translates to a time requirement of at least four (4) years to accomplish a minimum program of 7 wells.

We, therefore, request that all existing permits be lumped together and extended for a period of four (4) years from present termination dates, without specifying any order of work. We would be agreeable to stipulating that the permit terminates as soon as 7 successful wells (i.e. tested a minimum of 3

Mr. Sidney M. Fuke, Director
Planning Department
County of Hawaii

July 19, 1983
Page Two

megawatts each) of the 19 remaining drilling sites presently permitted are drilled and tested. It is absolutely necessary to keep the drilling program flexible, as the location of each successive well drilled will depend upon the information obtained from prior wells. Therefore, any attempt to force a schedule unnecessarily restricts a meaningful and economical development of geothermal information.

The likelihood of S.B. 903 (now signed by the Governor) not being fully implemented for two years makes it even more imperative that current Special Use Permits remain active and workable to insure an ongoing geothermal program. We would regard any lengthy lapse (of six months or more) in the continuity of the present geothermal activity as seriously jeopardizing the future of geothermal power in Hawaii.

We, therefore, urge you to seriously consider the necessity for leniency in time restrictions, and adjust future needs on the basis of actual past experience, recognizing that it is in the public interest to keep our geothermal effort alive in Hawaii.

Attached hereto is a summary of our current Special Use Permits, and our remarks applicable to each. Emphasis will be placed upon first exploring the Lanipuna and Daiichi prospects and then following with the Opihikao/Ashida prospect, which is more remote from the present center of activity.

With regard to S.B. 903, it is our understanding that present permits, including extensions of or modifications thereto, are grandfathered, but that any extensions to our programs such as acquisition of new leases or additional new Special Use Permits shall await implementation of S.B. 903.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

E. C. Craddick, President

ECC/al
Enc.

cc: M. Kinzler
J. S. Barnwell, Jr.
D. J. Otwell
S. Eisenstat
J. Clark
B. Craddick
Y. Yamanaka

PERMIT: Daiichi Prospect
SP80-347 (LUC 460)
Geothermal Exploration & Development Corp.
9 Wells - (3 Successful)

EFFECTIVE DATE: February 10, 1981

CONDITIONS: June 4, 1983 (First Well completed)*

TERMINATION DATE: February 10, 1984 (Extension recommended by
Planning Commission)

Requesting that additional time to complete exploratory work by drilling at least two successful wells, without stipulating when any well should be started or completed.

Require extension of termination date to December 16, 1987.

This permit may be lumped together with the Lanipuna and Opihikao projects.

*NOTE: One (1) year extension recommended by Planning Commission.

PERMIT: Opihikao/Ashida Prospect
SP77-265 (LUC 364)
Geothermal Exploration & Development Corp.
6 Wells

EFFECTIVE DATE: July 14, 1977 (starting date July 17, 1978)
July 14, 1979 (extended)
July 14, 1980 (extended)
March 14, 1983 (extended)

CONDITIONS: Second well to commence March 4, 1984

TERMINATION DATE: July 14, 1980
July 14, 1981 (extended)
July 14, 1984 (extended)

Requesting that additional time to complete exploratory work for at least two successful wells of the 5 remaining well sites with elimination of conditions requiring a specific start or finish of any well, including current conditions to commence the second well by March 4, 1984.

Require extension of termination date to December 16, 1987.

This permit may be lumped together with our Lanipuna and Daiichi projects.

PERMIT: Lanipuna Prospect
SP80-8 (LUC 471)
Barnwell Geothermal Corporation
6 Wells

EFFECTIVE DATE: December 16, 1980

CONDITIONS: December 16, 1981 (First Well completed)

TERMINATION DATE: December 16, 1983

Requesting that additional time to complete exploratory work by drilling at least three successful wells, without stipulating when any well should be started or completed.

Require extension of termination date to December 16, 1987.

This permit may be lumped together with our Daiichi and Opihikao projects.

BARNWELL GEOTHERMAL CORPORATION

October 31, 1983

Mr. Sidney M. Fuke, Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Special Use Permits
SP80-347 (LUC 460), SP77-265 (LUC 364), & SP80-8 (LUC 471)

Dear Mr. Fuke:

In response to your letter of October 20, 1983, we are submitting herewith separate formal applications for extension of time and modification of conditions for Special Use Permits SP77-265 (LUC 364) and SP80-347 (LUC 460), together with pertinent additional information relating to SP80-8 (LUC 471), which application was previously accepted by you.

A check for an additional \$200.00 filing fee is therefore enclosed, as requested.

As you will note from prior correspondence we are seeking more time to complete a meaningful exploration program, and more flexibility in our drilling program. All previous supporting statements remain applicable and inter-related to each of these separate permits, and may be used by you accordingly.

In addition to the foregoing, we are also suggesting a uniformity of conditions for all three (3) permits based upon actual field experience and up-dated Planning Department concerns. To accomplish this, we have compiled a set of applicable conditions from past and current permits and modified those (particularly Condition No. 4) as needed.

Locations of all wells will remain the same as previously submitted, and are in effect offsetting to one another being separated by approximately 1/4 mile. Site location maps are submitted for the purpose of clearly indicating the Lanipuna Well No. 6 and Daiichi Well No. 1 drilling sites as requested.

EXHIBIT A-1

Mr. Sidney M. Fuke, Director
Planning Department

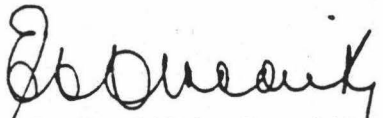
October 31, 1983
Page Two

To preserve the integrity of the existing permits we are leaving SP77-265 and SP80-347 in the name of Geothermal Exploration & Development Corp., which is a subsidiary of Barnwell.

We are also enclosing one copy each of reports of the previous work accomplished on Lanipuna Well No. 1 and Ashida Well No. 1 as requested, and ask that these be regarded as confidential.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

ECC/sm

Enclosures: Check for \$200.00

Drilling Reports on Lanipuna and Ashida (CONFIDENTIAL)

Individual Application with uniform conditions.

Location Map showing Lanipuna Well No. 6 Well Site

Location Map showing Daiichi Well No. 1 Well Site

cc: M. Kinzler - New York
S. Eisenstat - New York
M. Gardner - California

PERMIT: Opihikao/Ashida Prospect
SP77-265 (LUC 364)
Geothermal Exploration & Development Corp.
6 Wells

EFFECTIVE DATE: July 14, 1977

TERMINATION DATE: July 14, 1984

Requesting additional time to complete exploratory work for at least three (3) successful wells, and substitution of conditions with those outlined below, for the purpose of general uniformity of all Special Use Permits now held by the petitioner.

Conditions:

1. That prior to commencement of any operation, the petitioners or their authorized representative(s) shall comply with the requirements of Regulation 8 of the State Department of Land and Natural Resources relative to drilling for geothermal resources in Hawaii.
2. That the petitioners/representative(s) shall secure a building permit for all structures which are to be constructed on the subject property.
3. That prior to commencement of any drilling activity, the petitioners/representative(s) shall submit plans to the Planning Department showing the location and providing a metes and bounds description of the well site(s) to be drilled.
4. That the petitioners will demonstrate diligence by commencing at least one new exploratory well each year either under this permit or under other such permits held by petitioner.
5. That the length of this Special Permit shall be for a period not to exceed four (4) years from the effective date of the Special Permit, but to terminate upon the successful completion of three (3) exploratory wells. Successful being defined as having been field tested at a proven capacity of 3 megawatts each.
6. That the rules, regulations and requirements of the State Department of Health shall be complied with.
7. That the petitioners/representative(s) shall be responsible to assure that every precaution is taken to reduce any nuisances, whether it be noise or fumes, which may affect the residents and properties in the immediate area. Should it be determined that these precautionary measures are not being applied, the Planning Department is authorized to cease any further activity in the area.

8. That upon termination of the operation or if the petitioners determine that the project is not feasible, all structures erected shall be dismantled and removed from the site(s).
9. That sound barriers shall be erected to abate noise generated during the drilling and testing of the proposed wells.
10. That drilling be permitted seven (7) days per week, 24 hours/day, providing that Condition 9 above is adhered to.
11. That an archaeological reconnaissance survey shall be conducted of the proposed well site(s) prior to drilling. Such a report shall be submitted at the time that plans for the well sites are submitted to the Planning Department for review.
12. That the petitioner shall submit a status report to the Planning Director on a biannual basis, or, within thirty (30) days of the completion of any exploratory well, whichever occurs sooner. The expected biannual reports shall be due January 1st and July 1st of each year. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including a drilling activity report;
 - b. A description of the work being proposed over the next reporting period;
 - c. The results of the environmental/noise monitoring activities;
 - d. A log of the complaints received and the responses thereto;
 - e. The current status of exploration activities in the context of long-range development goals; and
 - f. Any other information that the Planning Director may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.

If requested by the petitioner, any proprietary information will be kept confidential within the time frame as may be agreed to.

13. That all other applicable rules and regulations shall be complied with.
14. That the petitioner, Geothermal Exploration & Development Corp., shall be responsible for complying with the stated conditions of approval. This permit shall be non-transferable and non-compliance with this condition shall result in the automatic nullification of the permit.
15. That the petitioner provide a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drillsite, 24 hours a day, to respond to any local complaints for the duration of the drilling activity.

16. That the petitioner conduct a noise monitoring program throughout the drilling operation. The petitioner shall submit the noise monitoring data to the Planning Department upon termination of the drilling operation or, at any time during drilling activity, upon the request of the Planning Director.

BARNWELL GEOTHERMAL CORPORATION

November 15, 1983

Mr. Sidney M. Fuke, Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Fuke:

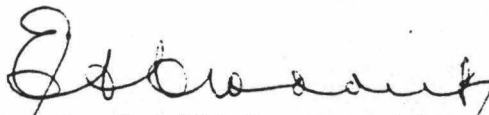
Amendment to Conditions
SP80-347 (LUC 460), SP77-265 (LUC 364) and SP80-8 (LUC 471)

Further to your letter of November 8, 1983, we wish to request that all Special Permits be transferred to Barnwell Geothermal Corporation.

We are also enclosing a statement from GeothermEx, Inc., which should be part of our application supporting documents.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION


E. C. Craddick, President

ECC/sm
Encl.

EXHIBIT D

GeothermEx, Inc.

SUITE 201
5221 CENTRAL AVENUE
RICHMOND, CALIFORNIA 94804

(415) 527-9876

CABLE ADDRESS: GEOTHERMEX
TELEX: 651122 ZS DLUW

709152 STEAM UD

November 9, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street
Honolulu, Hawaii 96819

Subject: Barnwell Geothermal Corporation,
Hawaii Exploration Program

Dear Ed:

Please submit the statement following hereafter to the Hawaii Planning Commission at the hearing scheduled November 22, 1983 relative to Special Use Permits SP80-347(LUC460), SP77-265(LUC 364) and SP80-8(LUC 471).

STATEMENT OF GEOTHERMEX, INC.

Barnwell Geothermal Corporation ("Barnwell") has retained GeothermEx, Inc. ("GeothermEx") to assess the geothermal energy potential of the Barnwell leaseholds in the Puna District of Hawaii, and to provide technical support (geology, well testing, reservoir engineering) during the exploration and development of the leaseholds.

GeothermEx, Inc. is a group of earth scientists, engineers and power economists providing independent field services and consulting in geothermal as well as petroleum exploration and development in the United States and abroad. The company was founded in 1973, and includes senior professional staff members, plus junior technical staff, associated specialists and non-professional staff. Our clients include electric utilities, major and independent oil companies, small and major landowners,

GeothermEx, Inc.

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5221 CENTRAL AVENUE
RICHMOND, CALIFORNIA 94804

(415) 527-9876

CABLE ADDRESS: GEOTHERMEX
TELEX: 66-31372 WORLD UW

Mr. Ed Craddick, November 9, 1983, Page 2.

agencies of federal, state and local governments, foreign governments, international agencies and banks (World Bank, IDB, ADB, Wells Fargo), research institutes, engineering companies, and major energy consumers looking for alternative energy sources.

GeothermEx has conducted more than 400 resource assessment projects for the purpose of geothermal development planning. Six areas are now producing commercial electric power (totaling about 940 MW), and pilot electrical power plants are in operation in some of the others. Many other areas are in the development stage. Other areas have been developed for non-electric, direct use of geothermal energy.

GeothermEx has worked in young volcanic terranes in the Azores Islands, Costa Rica, the Cascades of Oregon and California, the Rift Zone of East Africa (Kenya, Ethiopia, Djibouti and Mozambique), Japan, Indonesia and the Philippines, as well as Hawaii.

The senior staff members assigned to the Barnwell project in Hawaii are Dr. Murray C. Gardner, geologist, Dr. Subir K. Sanyal, reservoir engineer, Mr. John J. C. Bradbury, power economist, and Mr. Arch R. Campbell, geologist. Dr. Gardner has 23 years of experience in geothermal exploration and development. His experience includes work done in young volcanic areas since 1961. Dr. Sanyal has 14 years of experience in reservoir engineering. Mr. Campbell has been actively working in geothermal operations for 8 years; most of this has been in young volcanic areas. Mr. Bradbury has more than 40 years of experience in electric power management. He was in charge of facilities of the Bahamas Islands for 11 years.

GeothermEx, Inc.

SUITE 201
5221 CENTRAL AVENUE
RICHMOND, CALIFORNIA 94804

(415) 527-9876

CABLE ADDRESS GEOTHERMEX
TELEX 68-31372 WRLD UW

Mr. Ed Craddick, November 9, 1983, Page 3.

Successful drilling of well HGP-A has proven that a wet steam resource exists in the Puna District. Successful development at HGP-A has led to generation of about 3 megawatts of electric power. The total size of the reservoir, the amount of steam that can be produced and the economic value of the steam are still unknown. Operators have not been able to follow HGP-A by successfully drilling and testing additional wells for sufficiently long test periods to measure well deliverability declines and determine the extent and capacity of the reservoir.

Barnwell began exploration activities in Hawaii through its predecessor, Geothermal Exploration and Development Company (GEDCO) nearly 10 years ago. The principals of GEDCO have provided the drilling rig and team for all the deep exploratory wells drilled on Hawaii. The leaseholds of Barnwell are situated along the East Rift Zone of Kilauea. This is a very active, youthful part of the crust; eruptions and seismic events are frequent. A magmatic heat source clearly is present, but its precise position and effect on the hydrologic system are not well defined. Geophysical information in this area is only a guide to subsurface conditions. Complex subsurface geology and island hydrology cause ambiguity of the geophysical data. Accordingly, no drilling site may be assumed with complete confidence before drilling to have sufficient temperatures and permeabilities in the subsurface to make a commercial well.

Barnwell has drilled Lanipuna No. 1 and Lanipuna No. 1/ST (directional) and Ashida No. 1 wells on two of its leaseholds during 1980-1983. These wells have not encountered sufficient permeability to be useful for flow tests.

GeothermEx, Inc.

SUITE 201
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CABLE ADDRESS GEOTHERMEX
TELEX 66-31372 WRLD UW

Mr. Ed Craddick, November 9, 1983, Page 4.

Thermal Power Company has drilled Kapoho State Nos. 1 and 2 on its leasehold. We are not privy to test results but apparently difficulties in construction of the wells have prevented complete testing and reservoir analyses. In any case data from the Kapoho wells could not be extrapolated across structural "grain" of the East Rift Zone of Hawaii to the Barnwell leases. A great deal has been learned, at great expense, about the special requirements for construction of wells in the high temperature reservoirs of the East Rift Zone of Hawaii. We anticipate that each new well drilled will add considerably to understanding and quantitative analysis of the geothermal resource.

Hence, we have recommended that Barnwell apply for approval of the program under consideration by the Planning Commission to carry forward the exploration of the geothermal resource of the Puna District. The program is cognizant of the fact that the Ashida and Lanipuna/Daiichi prospects are separated by about 2 miles and cannot be considered as one unit. Even in The Geysers of California (a well-known steam field), wells drilled more than one mile from production areas are considered wildcats. Therefore, it should not be anticipated that every well will provide data applicable to all leases and operators.

An especially complex subsurface structural and hydrologic terrane occurs at the Barnwell leaseholds near the southern margin of the East Rift Zone. The northeasterly-trending principal features of the rift are probably dislocated by small transform structures, so that persistence of the main structures is not predictable. Some of the northeasterly-trending faults are active and intruded by very young hot magmatic material while others may be inactive, sealed or open but channels for percolating cold waters. The faults and subaerial and sub-oceanic

GeothermEx, Inc.

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TELEX 68-31372 WRLD UW

Mr. Ed Craddick, November 9, 1983, Page 5.

eruptive flows are highly altered and mineralized by hydrothermal solutions. This causes permeability changes over small distances. A complex of volcanic dikes has been intruded into the rift fractures and many eruptive centers. The puus and craters further disrupt reservoir continuity. For these reasons, several holes will need to be completed in each of the prospects to evaluate production, reservoir limits and interference between wells. The size of a reservoir cannot be determined from a single well test unless the well is flowed long enough for a boundary effect to be felt. For a geothermal reservoir this could require an impractically long time.

The nature, persistence and production capacity of a geothermal reservoir will require completion of several wells which can be tested and simultaneously observed. HGP-A and/or the Kapoho wells may or may not be located close enough to successful Barnwell exploration wells to be useful even if data is shared. The requirement for several wells is regardless of the total development objective of a geothermal operator.

Therefore we support the Barnwell applications for extensions of time and modifications for the Special Use Permits. We think that a prudent program has been proposed by Barnwell which will allow for orderly and efficient development of geothermal energy. There needs to be sufficient time to collect and evaluate technical information from each well and to economically budget a drilling program. We are aware of the concerns of the appropriate agencies that the development to geothermal energy for Hawaii be expedited. We think that the Barnwell

GeothermEx, Inc.

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CABLE ADDRESS GEOTHERMEX
TELEX 68-31372 WRLD UW

Mr. Ed Craddick, November 9, 1983, Page 6.

program reasonably approaches the solution of the problem of compatibility of expeditious work and great financial risk.

Sincerely,



Murray C. Gardner, Ph.D.
Executive Vice President

MCG/t

CONSOLIDATED BACKGROUND: BARNWELL GEOTHERMAL CORP.
AMENDMENT TO CONDITIONS
SPECIAL PERMITS: SP77-265 (LUC-364), SP80-347 (LUC-460) and Special
Permit No. 471

The petitioner, Barnwell Geothermal Corporation, is requesting amendments to three Special Permits which allows the drilling and evaluation of exploratory geothermal wells in the Puna District.

A brief description of each of the permits is provided below:

1. Opihikao/Ashida Prospect

Tax Map Key: 1-3-1: Portions of 24 and 25

Special Use Permit No. 77-265 (LUC-64)

Permit Issued: 7/14/77 by the State Land Use Commission

Previous Amendments: 3

Present Termination Date: 7/14/84

Number of Wells Permitted: 6

Number of Wells Drilled: 1

Total Acreage: 118.180 acres

2. Daiichi Prospect

Tax Map Key: 1-4-2: 10

Special Use Permit No. 80-347 (LUC-60)

Permit Issued: 2/13/81 by the Land Use Commission

Previous Amendments: 2

Present Termination Date: 2/10/84

Number of Well Permitted: 3 successful, 9 maximum

Number of Wells Drilled: none

Total Acreage: 180.475 acres

3. Lanipuna Prospect

Tax Map Key: 1-3-8: portions of 6, 19, 23-32

Special Use Permit No. 471

Permit Issued: 12/16/80 by the Planning Commission

Previous Amendments: 1

Present Termination Date: 12/16/83

Number of Wells Permitted: 6

Number of Wells Drilled: 2

Total Acreage: 12 acres (two acres per well site)

In a letter dated July 19, 1983, the petitioner explained the need for a consolidated exploratory drilling program. The petitioner stated, in part, that:

"We have only drilled four (4) geothermal wells in the last forty (40) months, two for us and two for Thermal Power Company, using our drilling rig. Most of the wells need reworking, perhaps as much as two months each. This means, the Exploratory Program 1980-83 will yield at best one or two successfully completed exploratory geothermal wells.

"We must also assume that our rig will be needed by Thermal Power Company (Puna Ventures) for at least one and possibly two more wells in the next year or two.

"Assuming that some of the past construction problems are solved, we would expect to improve the past average rate of one well per year to two wells per year. This translates to a time requirement of at least four (4) years to accomplish a minimum program of 7 wells.

"We, therefore, request that all existing permits be lumped together and extended for a period of four (4) years from present termination dates, without specifying any order of work. We would be agreeable to stipulating that the permit terminates as soon as 7 successful wells (i.e. tested a minimum of 3 megawatts each) of the 19 remaining drilling sites presently permitted are drilled and tested. It is absolutely necessary to keep the drilling program flexible, as the location of each successive well drilled will depend upon the information obtained from prior wells. Therefore, any attempt to force a schedule unnecessarily restricts a meaningful and economical development of geothermal information.

"The likelihood of S.B. 903 (now signed by the Governor) not being fully implemented for two years makes it even more imperative that current Special Use Permits remain active and workable to insure an ongoing geothermal program. We would regard any lengthy lapse (of six months or more) in the continuity of the present geothermal activity as seriously jeopardizing the future of geothermal power in Hawaii.

"We, therefore, urge you to seriously consider the necessity for leniency in time restrictions, and adjust future needs on the basis of actual past experience, recognizing that

it is in the public interest to keep our geothermal effort alive in Hawaii."

In a subsequent letter dated September 28, 1983, the petitioner further described their exploratory program as follows:

"It is not yet possible to indicate 'the most promising area' as this must depend upon the results of drilling and testing programs. The best indications are provided by findings of other drilling programs such as Puna Ventures and HGP-A, and their possible geothermal inter-relation with our wells.

"At present our efforts are therefore concentrated in the Lanipuna and Daiichi area, and wells being planned are in effect step-out wells from the HGP-A location.

"The immediate plan is to drill on Lanipuna Well Site No. 6, however, commencement has been delayed pending the Attorney General's opinion on Act 296.

"We would then plan to drill an offset well at Daiichi Well Site No. 1, and then continue a series of offset wells to both Lanipuna No. 6 and Daiichi No. 1 to attempt to define the perimeter of the reservoir as it relates to our prospects.

"If and when such efforts appears unsuccessful in that area, we would plan further drilling at Opihikao.

"It is also possible that after drilling four or five successful wells in the Lanipuna and Daiichi area, that we would then move to prove out the Opihikao area. This future decision would depend upon findings up to that time, as well as the

market and the necessity of moving quickly into a development program to meet such market demand.

"Flexibility is therefore a key ingredient in conducting an exploratory program with an optimum of economy.

"Our anticipated development plans must await the outcome of our exploratory program and would entirely depend upon a cost effective commercialization of such findings.

"It is our hope that we could develop from our present prospect a minimum of 25 megawatts within five to seven years, with a potential for at least 100 megawatts within fifteen years. This could represent a significant inflow of cash to the Big Island, on the average of \$5,000,000 to \$10,000,000 per year for wells and plants construction during the development stage."

A series of correspondences between the Planning Department and the petitioner continued for several months. The end result was the petitioner's decision to seek simultaneous amendments to each of the permits. As part of this request, the petitioner suggested the following uniform set of conditions that would meet their objectives:

1. "That prior to commencement of any operation, the petitioners or their authorized representative(s) shall comply with the requirements of Regulation 8 of the State Department of Land and Natural Resources relative to drilling for geothermal resources in Hawaii.
2. "That the petitioners/representative(s) shall secure a building permit for all structures which are to be constructed on the subject property.

3. "That prior to commencement of any drilling activity, the petitioners/representative(s) shall submit plans to the Planning Department showing the location and providing a metes and bounds description of the well site(s) to be drilled.
4. "That the petitioners will demonstrate diligence by commencing at least one new exploratory well each year either under this permit or under other such permits held by petitioner.
5. "That the length of this Special Permit shall be for a period not to exceed four (4) years from the effective date of the Special Permit, but to terminate upon the successful completion of three (3) exploratory wells. Successful being defined as having been field tested at a proven capacity of 3 megawatts each.
6. "That the rules, regulations and requirements of the State Department of Health shall be complied with.
7. "That the petitioners/representative(s) shall be responsible to assure that every precaution is taken to reduce any nuisances, whether it be noise or fumes, which may affect the residents and properties in the immediate area. Should it be determined that these precautionary measures are not being applied, the Planning Department is authorized to cease any further activity in the area.
8. "That upon termination of the operation or if the petitioners determine that the project is not feasible, all

structures erected shall be dismantled and removed from the site(s).

9. "That sound barriers shall be erected to abate noise generated during the drilling and testing of the proposed wells.
10. "That drilling be permitted seven (7) days per week, 24 hours/day, providing that Condition 9 above is adhered to.
11. "That an archaeological reconnaissance survey shall be conducted of the proposed well site(s) prior to drilling. Such a report shall be submitted at the time that plans for the well sites are submitted to the Planning department for review.
12. "That the petitioner shall submit a status report to the Planning Director on a biannual basis, or, within thirty (30) days of the completion of any exploratory well, whichever occurs sooner. The expected biannual reports shall be due January 1st and July 1st of each year. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including a drilling activity report;
 - b. A description of the work being proposed over the next reporting period;
 - c. The results of the environmental/noise monitoring activities;
 - d. A log of the complaints received and the responses thereto;

- e. The current status of exploration activities in the context of long-range development goals; and
- f. Any other information that the Planning Director may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.

If requested by the petitioner, any proprietary information will be kept confidential within the time frame as may be agreed to.

- 13. "That all other applicable rules and regulations shall be complied with.
- 14. "That the petitioner, Barnwell Geothermal Corporation, shall be responsible for complying with the stated conditions of approval. This permit shall be non-transferable and non-compliance with this condition shall result in the automatic nullification of the permit.
- 15. "That the petitioner provide a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drillsite, 24 hours a day, to respond to any local complaints for the duration of the drilling activity.
- 16. "That the petitioner conduct a noise monitoring program throughout the drilling operation. The petitioner shall submit the noise monitoring data to the Planning Department upon termination of the drilling operation or, at any time during drilling activity, upon the request of the Planning Director."

It should be noted that the only new conditions being proposed by the petitioner are numbers 4 and 5. All of the other conditions listed above are in effect at this time.

Finally, GeothermEx, Inc., a firm retained by the petitioner to assess the geothermal energy potential of the Barnwell leaseholds in the Puna District, submitted, in part, the following statement dated November 9, 1983:

(Read portions of GeothermEx statement dated 11/9/83)

CONSOLIDATED FINDINGS: BARNWELL GEOTHERMAL CORP.
AMENDMENT TO CONDITIONS

SPECIAL PERMITS: SP77-265 (LUC-364), SP80-347 (LUC-460) and Special Permit No. 471

Upon careful review of the subject request staff is recommending that it be approved based on the following findings:

The approval of the time extension request will not be contrary to the purpose and intent of the time condition. The purpose of stipulating time conditions is to assure that any proposed development come to fruition in a timely manner. In this particular case, the Special Permits have been granted to allow the drilling of exploratory geothermal wells for the purpose of assessing geothermal potential for the area. During the initial lifespan of the permits the petitioner has completed the drilling of three wells. These wells have not encountered sufficient permeability to be useful for flow tests. Furthermore, the drilling program encountered previously unexpected field conditions relating to extremely high temperatures which required modifications to casing materials and cementing procedues. The information obtained from the initial drilling activity required more time to analyze and modifications to subsequent drilling programs which were not anticipated during the original planning for the permits. Consequently, a revised drilling program has been developed whnch requires additional time to collect and evaluate technical

information to adequately determine the extent and capacity of the geothermal reservoir in the area..

The work which has been completed to date represents a significant investment and clear commitment to conduct the activities allowed by the Special Permit.

Approval of the four-year time extension will provide sufficient time for the petitioner to complete the exploration program in a safe and efficient manner. Furthermore, approval of the subject request will not alter the reasons for which the permit was originally approved nor increase any of the expected impacts of the project.

The County of Hawaii has long been a supporter of geothermal development. Policies contained in the General Plan support this commitment. Actions such as the approval of several geothermal exploration programs through the Special Permit process and partial funding of the HGP-A program reflect the County's support and interest in geothermal development.

At the same time, we are supportive of the orderly growth and development of this island. We are thus mindful of the need to assure that a development works for and not against the County. Care must therefore be taken to balance the social, economic, and environmental impacts of any development.

There are certain land use activities that have been with us for a good number of years. These include housing, resort development, agriculture and recreation. Having been with us for decades, regulations have evolved and are already in place. Yet, as problems and/or different issues emerge, these

regulations are amended or new ones are created to more accurately achieve the appropriate social, economic, and environmental balance.

Geothermal development, while already practiced elsewhere, is relatively new here. Our knowledge and experience with geothermal development is understandably rather limited; but has increased tremendously since the first exploration permit was issued six years ago and will continue to grow and expand as geothermal activities move forward. Its infancy, to some extent, partially accounts for the absence of clear cut regulations and standards to guide its development while taking care of its "externalities" or off-site problems.

We believe that geothermal development in the State at this stage is faced with a dilemma. On one hand, we have a policy desire and spirit to engage in a new field (geothermal); and on the other, its infancy contributes to the absence of comprehensive regulations. The regulations will invariably help shape and direct geothermal development; similarly, as geothermal activities occur, regulations will be shaped and re-shaped.

It is within this framework that we are supportive of the petitioner's proposal. In the absence of comprehensive regulations governing geothermal development, we believe that a mutual spirit of give and take must be established to guide the continued efforts of exploratory drilling programs. As such, while we recommend approval of the request to extend the life of the permits and to grant additional flexibility in the drilling

program, we are also taking this opportunity to recommend that additional conditions be imposed to reflect the increased body of knowledge which has been acquired since the existing conditions were adopted. It should be further noted that the number of wells allowed by each of the permits will remain the same.

Based on the foregoing we are recommending that all of the permits be issued under the name of Barnwell Geothermal Corporation and that the following set of conditions be adopted for all three permits, replacing those which are now in effect:

1. The petitioners, its successors or assigns shall be responsible for complying with all of the stated conditions of approval.
2. Prior to the commencement of any grubbing or grading activity, the petitioner shall:
 - a. Provide a metes and bounds description of the well site(s) and access road right-of-way(s) to the Planning Department;
 - b. Mark the boundaries of the designated well site(s), and the access road right-of-way(s), and no construction or transportation equipment shall be permitted beyond the prescribed boundaries of the said well site(s) and road right-of-way(s);

- c. Conduct an archaeological reconnaissance survey for the proposed well site(s) and access road right-of-way(s) and submit it to the County Planning Department for review; and
 - d. Comply with all requirements of the County grading ordinance.
3. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or its designee a noise monitoring plan to be implemented when the well drilling and testing period begins. This plan should allow the coordination of noise complaints with noise measurements, the meteorological conditions, and the type of operations which occurred at the well site. The data obtained shall be available upon request by the appropriate governmental agencies including the Planning Department. The noise monitoring program shall be in operation during all active phases of the project.
4. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or designee an air quality monitoring plan to be implemented when the well drilling period begins. The plan shall include provisions for installation, calibration, maintenance and operation of recording instruments to measure air contaminant concentrations. The specific

elements to be monitored, the number of stations involved and the frequency of sampling and reporting shall be specified by the Planning Department or its designee. The air quality monitoring program shall be in operation during all phases of the project.

5. Prior to any drilling activity the petitioner shall submit and secure approval from the Hawaii County Civil Defense Agency a plan of action to deal with emergency situations which may threaten the health, safety and welfare of the employees/persons in the vicinity of the proposed project. The plan shall include procedures to facilitate coordination with appropriate State and County officials as well as the evacuation of affected individuals.
6. The petitioner shall maintain a record in a permanent form suitable for inspection and shall make such record available on request to the Planning Department or its designee. The record shall include:
 - a. Occurrence and duration of any start-up, shut-down and operation mode of any well/facility.
 - b. Performance testing, evaluation, calibration checks and adjustment and maintenance of the continuous emission monitor(s) that have been installed.
 - c. Emission measurements reported in units compatible with applicable standards/guidelines.

7. The petitioner, its successors or assigns shall apply the "Best Available Control Technology" (BACT) with respect to geothermal emissions during all phases of the project, including well drilling and testing. "Best available control technology" means the maximum degree of control for noise and air quality concerns taking into account what is known to be practical but not necessarily in use. BACT shall be determined by the Planning Department in consultation with other appropriate governmental agencies involved in the control or regulation of geothermal development. Compliance with applicable noise and air quality regulations or guidelines shall be deemed to meet the BACT requirement. Should it be determined that BACT is not being employed, the Planning Department is authorized to take any appropriate action including suspension of any further activities at the project site or referral of the matter to the Planning Commission for review and disposition.
8. Unabated open venting of geothermal steam shall be prohibited unless prior approval is received from the Planning Department or its designee. The Planning Department or its designee shall permit unabated open venting only when all other reasonable alternatives have been deemed to be unacceptable. Venting for all other situations shall be permitted only when accompanied by appropriate sound and chemical abatement techniques approved by the Planning Department or its designee.

9. The petitioner shall provide, install, calibrate, maintain and operate a meteorological station and conduct continuous meteorological monitoring at the site or at another location as may be mutually agreed to by the petitioner and the Planning Department. The data shall be provided in a format agreeable to the Planning Department on a monthly basis and shall include temperature, wind velocity, wind direction and other information deemed necessary by the Planning Department.
10. The petitioner shall publish a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drill site, 24 hours a day, to respond to any local complaints.
11. The petitioner shall submit a status report to the Planning Department on a biannual basis (by the first day of January and July of each year), or, within 30 days of the completion of any exploratory well. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including drilling activity report;
 - b. A description of the work being proposed over the next reporting period;

- c. The results of the environmental/noise monitoring activities;
- d. A log of the complaints received and the responses thereto;
- e. The current status of exploration activities in the context of long-range development goals; and
- f. Any other information that the Planning Department may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.

12. Until such time as noise regulations are adopted by the State or County, the petitioner shall comply with the following guidelines which shall be enforced by the Planning Department:

- a. A general noise level of 55 dba during daytime and 45 dba at night shall not be exceeded except as allowed under b and c. For the purposes of these guidelines, night is defined as the hours between 7:00 p.m. and 7:00 a.m.;
- b. The allowable noise levels may be exceeded by a maximum of 10 dba; however, in any event, the generally allowed noise level should not be exceeded more than 10% of the time within any 20 minute period;
- c. The noise level guidelines may be waived only for the specified duration of authorized open venting periods;

- d. The noise level guidelines shall be applied at the existing residential receptors which may be impacted by the geothermal operation; and
 - e. Sound level measurements shall be conducted using standard procedures with sound level meters using the "A" weighting and "slow" meter response unless otherwise stated.
13. A disposal site or sites, approved by the State Department of Health, shall be provided for sump contents and other waste materials to be disposed of from the drilling activity.
14. All sumps/ponds shall be purged in a manner meeting with the approval of the State Department of Health.
15. When wells are completed or abandoned, all denuded areas on and around the drilling site shall be revegetated in a manner meeting with the approval of the Planning Department.
16. The petitioner shall grant unrestricted access of the subject property(ies) to authorized governmental representatives or to consultants or contractors hired by governmental agencies for inspection, enforcement, or monitoring activities. A designated employee shall be available at all times for purposes of supplying information and responses deemed necessary by the authorized governmental representative in connection with such work.

17. The petitioner will drill at least one new exploratory well each year either under this permit or under other such permits held by the petitioner.
18. The petitioner shall comply with the requirements of Chapter 14, Acticle 9 of the Hawaii County Code, relating to outdoor lighting.
19. This special permit shall be effective until December 31, 1987, or upon the successful completion of 3 exploratory wells, whichever occurs sooner. Successful, for the purposes of this condition, is defined as having a field tested capacity of 3 megawatts each.
20. All other applicable rules, regulations and requirements, including those of the State Department of Health and the State Department of Land and Natural Resources shall be complied with.

Should any of the foregoing conditions not be met, the permit shall be automatically void.

PLANNING COMMISSION

Planning Department
County of Hawaii

HEARING TRANSCRIPT
November 22, 1983

A regularly advertised public hearing on the applications of Barnwell Geothermal Corporation and Geothermal Exploration and Development Corporation was called to order at 3:15 p.m. in the Hilo Armory, Hawaii Redevelopment Agency's Conference Room, South Hilo, Hawaii, with Chairman Clyde Imada presiding.

PRESENT:	Clyde Imada	ABSENT:	Clarence Mills
	Thomas Hirano		George Ponte
	Roy Kagawa		
	Barbara Koi		
	Arthur Martin		
	George Martin		
	Donald Thompson		

Sidney M. Fuke, Planning Director
Keith Kato, Staff Planner
Brian Nishimura, Staff Planner

R. Ben Tsukazaki, Deputy Corporation Counsel

and approximately 24 people from the public in attendance

CHAIRMAN: Public hearing on the application of Barnwell Geothermal Corporation to amend conditions relating to time performance of Special Permit No. 471. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program. The property involved is located along the south side of Pohoiki Road and about 1,500 feet from the HGP-A well, at its nearest point, adjacent to and on the makai side of Leilani Estates and Lanipuna Gardens Subdivisions, Keahialaka, Puna, TMK: 1-3-8:6, 7, 19 and 1-3-9:Portion of 7. Staff?

NISHIMURA: Mr. Chairman, maybe I should get the advice of the Deputy Corporation Counsel; but there are three items listed here for 2 o'clock, Barnwell Geothermal Corporation, Geothermal Exploration and Development Corporation and, or two by Geothermal Exploration and Development Corporation. I would like or I would like to suggest that these hearings be consolidated as the background and findings for these have been consolidated. Barnwell, well, Geothermal Exploration and Development Corporation is a subsidiary of Barnwell Geothermal Corporation; and as part of the time extension request, they're also requesting that the two other permits issued under Geothermal Exploration and Development Corporation be reissued under the name of Barnwell. And, for that reason, I would like to request that the hearings for the three requests be consolidated.

CHAIRMAN: Okay, is it okay with the applicant?

CRADDICK: Yes.

CHAIRMAN: If it's okay with the applicant, then you may proceed.

THOMPSON: Mr. Chairman?

CHAIRMAN: Commissioner Thompson.

THOMPSON: Are we going to accept this as a complete one or are we eventually coming to three applications -?

CHAIRMAN: We're going to have to take each individual -.

THOMPSON: Individual?

CHAIRMAN: Yeah, action separately.

THOMPSON: Because I notice on the tax key they are not all in one location.

CHAIRMAN: So we'll take it individually.

NISHIMURA: That's correct; and the permits would also remain separate.

(Amended the agenda to indicate that the correct tax map key for Special Permit 471 is 1-3-8:portions of 6, 19, 23-32; oriented the Commission and public of the subject and surrounding properties; and presented background and findings for approval with conditions on Special Permit Nos. 471, 364 and 460, on file.)

And, again, I would like to remind the Commissioners that the recommendation also includes the recommendation to change the name of the permits to be issued all under the name of Barnwell Geothermal Corporation, although the three permits will still remain separate.

CHAIRMAN: Commissioners, any questions of staff?

A. MARTIN: Mr. Chairman?

CHAIRMAN: Commissioner Martin.

A. MARTIN: Did you want to include in here that the biennial report by January 1st and July 1st?

NISHIMURA: Thank you, Commissioner Martin. Yes, it is our intention that the same addition be provided for the Barnwell permits; and I shall so reflect it, that the reports are due prior to July, well, January 1st and July 1st of each year.

CHAIRMAN: Any further questions?

THOMPSON: Mr. Chairman?

CHAIRMAN: Commissioner Martin, Thompson, I'm sorry.

THOMPSON: There's two Martins here, that's enough, more than enough. Just a question or point of information. Did you read into the record, what you call, the Hawaii Island Chamber of Commerce's letter?

NISHIMURA: I should have, thank you. The record shall so reflect the support of the Hawaii Chamber of Commerce's letter.

CHAIRMAN: Any other questions? If not, is the applicant or representative present?

CRADDICK: Yes. My name is Ed Craddick. I'm the president of Barnwell Geothermal Corporation.

CHAIRMAN: Mr. Craddick, can I swear you in. Do you solemnly swear to tell the truth, the whole truth and nothing but the truth?

CRADDICK: I do.

CHAIRMAN: Mr. Craddick, are you able to comply with the conditions as stated?

CRADDICK: Yes, we are. I would like to clarify one point, if I could. The condition 19 stipulates that successful program will be upon the completion of three successful wells. That means in each of the three projects? I wasn't sure whether that -.

NISHIMURA: That's correct, because these conditions apply to each of the permits.

CRADDICK: To each project, right.

I just wanted to clear that, find out. Otherwise, we're in complete accordance with the conditions and intend to abide by them and comply fully with them.

CHAIRMAN: Commissioners, any questions of the applicant?

THOMPSON: Mr. Chairman? I just have one of Mr. Craddick.

CHAIRMAN: Commissioner Thompson.

THOMPSON: In that, you're asking for an extension and the Dillingham outfit is also asking for an extension; and yet it seems like you're doing their drilling and you're the only outfit who has the rigs here. Will this conflict with this extension?

CRADDICK: No. At the present time, we are the only drilling company in the island. We have worked into this program the possibility that we would be doing work for both of our projects. So we have allowed for that in there; and the time we have asked for would permit us to do both.

CHAIRMAN: Any further questions?

G. MARTIN: Yes, Chairman.

CHAIRMAN: Commissioner Martin.

G. MARTIN: Mr. Craddick, you have heard the conditions read out today?

CRADDICK: Yes.

G. MARTIN: And you know the concern of our public members, too, with regard to safety and health?

CRADDICK: Yes, we do.

G. MARTIN: I hope you understand that if that's violated this Commission, with whatever means they have, will do everything to just stop operations.

CRADDICK: Right. We have always tried, and successfully as we possibly could, to abide by those. In addition to the, right, to the limits that are imposed upon us, of course, we're aware that there are nuisance limits that we have to pay attention to; and we do that also. We started this work, oh, in 1980. Our drilling equipment hadn't been tested out for noise. Since that time both Thermal Power and our Company have spent substantial money in sound abatement equipment on the drilling rig; and we have kept it down now. I think the word is tolerable. We have just spent some money on hydrogen sulfide detecting to make sure that if any is on the job that we detect it before it can do any damage. So we have learned a lot in the last two years ourselves about a successful operation and one that takes into full account the concerns of the public and the nuisance factors that it does impose upon them during the course of the work.

We've tried to work, cut out weekends when we could; and we have done that work in a five-day week. Sometimes we can't do that but we've been very cognizant of this problem; and we remain that way.

G. MARTIN: Thank you.

CHAIRMAN: Any further questions?

A. MARTIN: Mr. Chairman?

CHAIRMAN: Arthur Martin.

A. MARTIN: Mr. Craddick, do you feel that if we extend the time that from what you have learned in the past that you will be able to stay within the different factors of noise and that as you, of what you've done before?

CRADDICK: Yes, yes, I do. And we, like I say, we've learned a lot about the thing and I think we can, the public will be surprised at how much progress we've made in that respect. We also have plans to cut down the length of time that we'll be on each project. We found ways of cutting down the drilling time in addition to that; and I believe that will contribute considerably.

CHAIRMAN: If there's no other questions, thank you, Mr. Craddick.

CRADDICK: Thank you.

CHAIRMAN: This is a public hearing. Can I have a show of hands of those of you that want to testify? Okay, well, let me swear both of you in, well, all of you in. Will you please rise. Anybody else that wants to testify? Do you solemnly swear to tell the truth, the whole truth and nothing but the truth?

TESTIFIERS: I do.

CHAIRMAN: Ma'am, you want to start first?

GADD: My name is Cheryl Gadd. I'm vice president of the Greg Gadd Real Estate Incorporated; and we own a portion of a piece of land which Barnwell is currently commencing to drill upon. We also own a home that's approximately 400 feet from this drilling site; and there's a family in the house. My main concern is for the family living in the house and any other people that do live in the area. It seems like I heard a lot about how much you've learned or the corporations and the geothermal companies have learned, while they're doing this, and it seems like there's a still lot more to learn. And I feel that there is, it's really not safe to experiment around people when you really don't know what the outcome is from the things that are happening. And we're also concerned with the pollution factors to the air and to the water. Since this house is close to the drilling site, we're wondering if there has ever been any tests done to monitor water that is so close to a drilling site; and, if not, we feel that those tests should be completed before there is any more drilling continued. And we're also concerned with the noise level during and after a drilling operation. And we understand that the noise level cannot exceed 55 decibels. So 40 decibels would be equivalent of a living room, a quiet office; 50 decibels is like light auto traffic at 100' and 60 decibels is like an air conditioning unit at 20'. ...(inaudible).

We're wondering means, the Commission has to stop the operation in the event of violations. It seems like it's harder to stop things once it's started and it's easier to do things in the beginning. We're also concerned about the fact that prime agriculture land is being used to conduct these experiments, along with an area where people are living. And as a landowner, it seems like we don't have much choice in how our property is being used. And we're concerned about who's going to be monitoring the noise levels and pollution level. And future accidents, there was an accident a while back on the drill site that wasn't reported for about a long time; and we're concerned about liability in case of an accident. Being landowners, are we going to be held liable if something happens or if people are found to be in, sick maybe many years later? We are, for the record, we're against any further experimentation of our lands until we can be sure that it is safe.

CHAIRMAN: Is that it, Cheryl?

GADD: Uh huh.

CHAIRMAN: Did you say that they're going to drill on your property?

GADD: We own an interest in a piece of property that the Barnwell Company is commencing to drill upon.

CHAIRMAN: Did you sign an agreement?

GADD: I understand that there's a leasehold over all of that property.

CHAIRMAN: What is your interest in this?

GADD: We own a portion of it -.

CHAIRMAN: You own in fee a portion of that property?

GADD: And the house we own is 400 feet away that has tenants in it.

CHAIRMAN: The house, is the house on the same property as where they're going to be drilling?

GADD: No the house is on a different piece of property. It's 400 feet away from the drilling site. It's a different piece of property. This is in the Lanipuna.

NISHIMURA: Mr. Chairman?

CHAIRMAN: Brian.

NISHIMURA: For point of clarification, I believe that the house she's talking about is situated in the Lanipuna Gardens Subdivision. I believe it's a one-acre subdivision situated here. The locations that we show here for the proposed well sites are not exactly where that next well is proposed to be drilled. However, it is in relatively close proximity to the dwelling in Lanipuna Gardens. The ownership situation as far as I could gather, and I think that it would be best to ask the applicant to provide us with any information that they have regarding the ownership situation, but my understanding is that the Gadd's as well as others own a, they have an agreement of sale on the property and the title is still held by J.T. Trading. But I have not see any of the deed documents to indicate, you know, what kinds of agreements have been made regarding the geothermal rights. So I would advise the Commission to, if they're concerned about those issues, to ask the applicant to try to clarify, you know, through the information that they have on that.

CHAIRMAN: Commissioners, any questions of -?

A. MARTIN: Mr. Chairman?

CHAIRMAN: Commissioner Martin.

A. MARTIN: Just to get clear in my mind, this piece of property, did you recently come in, your interest in the property, was it something recent after the original agreement was made with the company?

GADD: How recently would that be? It's been couple of years, close to three years.

A. MARTIN: It sounds like you came in part ownership after the original -.

GADD: The leasehold?

A. MARTIN: The original agreement was made for the geothermal. It sounds to me that way.

GADD: I'm not sure.

NISHIMURA: Again, Mr. Chairman, for clarification, that permit was issued December 16, 1980, by the Planning Commission. At that time, there was a subdivision application pending in our office by J.T. Trading Company involving, I mean a proposed subdivision involving the area that the Gadds now have an interest in. So the subdivision of that parcel occurred after the special permit was issued for the geothermal drilling.

CHAIRMAN: So actually when they bought the property, you know, more or less they should have known -.

NISHIMURA: The permit was already issued.

CHAIRMAN: Yeah. You kind of knew that development, geothermal development, was going to, was there, huh?

GADD: Probably so.

CHAIRMAN: Okay, Commissioners?

THOMPSON: Mr. Chairman?

CHAIRMAN: Commissioner Thompson.

THOMPSON: Are you presently receiving any remuneration from that interest in that particular piece of property from anyone?

GADD: Any what?

THOMPSON: Any rental from it, any type of -?

GADD: Yes, the house is being rented out. The house has tenants in it.

THOMPSON: But when you talk about the house, we're talking about two separate properties, right?

GADD: Uh huh.

THOMPSON: But how I hear it or I understand it, you're saying that you have an interest in the geothermal area also?

GADD: Uh huh.

THOMPSON: Are you receiving any portion, any dollars from -.

GADD: Some of the other people who own the property have been working with the Barnwell industry, Barnwell Company, and they have been negotiating and they have been compensated for the papayas that they grow, though. There has been compensation for that.

THOMPSON: And you happen to be the only one left out?

GADD: We, the land, I'm not sure how those, call, exactly, I know what you want to know, but I'm not sure how to answer it. Our interest doesn't include exactly where they're drilling, I think.

THOMPSON: Well, the reason I'm asking this question is that, to clarify myself, is that I don't want to belabor this thing and say, hey, look, you knew this particular site was being developed at some time but all of a sudden you find that they're going to do it next week sometime. And are you, I'm just butting out and we're awakening you at this time.

GADD: I understand that, but I believe that the issue is the extension that, that's being applied for to go, continue for three or four more years.

THOMPSON: All right, I get your point. You're just doing your part to let the people know that you're against it.

GADD: That we're concerned because there are people living very close to the drilling site, more than anything.

THOMPSON: Thank you.

CHAIRMAN: Perhaps the applicant can, you know, fill us in a little bit about her situation.

A. MARTIN: May I ask one more question?

CHAIRMAN: Commissioner Martin.

A. MARTIN: I wanted to ask a question.

CHAIRMAN: Cheryl, Commissioner Martin wants to ask you one question.

A. MARTIN: You're one of several owners of the property, is that right?

GADD: Right.

A. MARTIN: How do the other owners of the property feel, do you know?

GADD: I know that for a while they were trying to work out, I believe, to sell the property; but Mr. Craddick knows more about that than I do.

CRADDICK: The property in question was, goes back to June 1980 when we worked on the geothermal lease agreement with J.T. Trading Company; and then with the understanding, of course, in that, anyone who bought any of that property later on would have to get this encumbrance that continued with the property. At that time we also had the hearings here. We started out these six wells and so it was public knowledge where the location of those wells or future wells would be whenever we drilled on them. So it seems like anybody who would go in there and buy the property would, should be aware that this encumbrance is there.

Now we still are obligated under our, under the terms of our agreement to compensate for any damage that is done. Now the first time that we've had to really to do that is with this papaya crop that was planted seven months or eight months ago; and at the time we decided move on that site. At this stage, they told us that their papaya was growing there. So we did have an evaluation of the

crop and we arrived at a settlement. There were, I think, six members to this group. All of the others signed it and agreed and we paid them the cash amount that they asked for, with the stipulation that if there's any other further damage or they can demonstrate any more loss that we will compensate them for any reasonable, fair amount of that, too. So we intend to live up to our obligations in that way. Any damage that we do to anybody, we are obligated to under our agreement to compensate them for it. So this is over and above the Planning Commission's estate restrictions or anything. It's an agreement we have with the owner of the property, the surface owner, who also stands to benefit if we find steam. He has a two percent overriding royalty, anybody that owns that property. These people would participate in that if we find it. So there was some inducement to an owner there, of course, to get in and own that property from that viewpoint also.

FUKE: Mr. Chairman. Mr. Craddick, who owns that land right now?

CRADDICK: As far as I understand, J.T. Trading -.

FUKE: Okay, J.T. Trading owns the land?

CRADDICK: It's being sold under an agreement of sale to the tenants in common.

FUKE: Okay, a portion, okay, the -.

CRADDICK: Part of this group is the Gadds.

FUKE: Back in 1980 the parcel was one; and at that point in time J.T. Trading had owned the entire parcel and he subsequently came in for a subdivision -?

CRADDICK: Yeah.

FUKE: And that subdivision was then approved?

CRADDICK: Yes.

FUKE: The special permit for exploratory activities also included a portion of the parcel that Mrs. Gadd has an interest in?

CRADDICK: Correct.

FUKE: Is that correct?

CRADDICK: Right. Now I don't know their arrangement, the Gadd's arrangement, with the other members, whether they participate in the settlement we made with the others. They represented themselves as the ones who were -.

FUKE: So Mrs. Gadd and several others have an agreement of sale from J.T. Trading -?

CRADDICK: Well, I don't know, the Gadds, now, this is something that they have to explain to you. From what I understand the other group planted the papaya and they were the ones that suffered the damage.

FUKE: Do you -?

CRADDICK: The Gadds were not included in that part -.

FUKE: Okay, do you have any surface interest on the property that the Gadds have an undivided interest in?

CRADDICK: Do we have any surface interest?

FUKE: Yeah.

CRADDICK: No, we don't. Just the agreement, just the agreement that allows us to enter on and that to carry out exploration and so forth.

FUKE: Was there a covenant or an easement or whatever that would have conveyed that understanding to subsequent property owners?

CRADDICK: Yes yes. When the property was sold by J.T., this was an encumbrance filed with the Bureau of Conveyances.

FUKE: That there would be geothermal exploratory -?

CRADDICK: Yes.

FUKE: Activities on the subject property?

CRADDICK: Right. That was filed. It's on file.

CHAIRMAN: Commissioner Martin.

A. MARTIN: Mr. Craddick, are you, have you been in any communication, any communication from the other members, other people who own the property?

CRADDICK: Yes.

A. MARTIN: Their feelings toward the extension of time?

CRADDICK: Yes, they've signed an agreement allowing us to enter and carry on our work in exchange for a monetary settlement that we made with them that compensates them for the damage we did to their papaya crop, their anticipated loss because it takes two years growth for papaya.

A. MARTIN: But as far as you know, they have not objected to the extension of the time?

CRADDICK: No, no. The, our agreement with them isn't limited by the time imposed on us by the special use permit. Our agreement goes beyond that. It's a long-term agreement, ten years, or something like that.

G. MARTIN: Mr. Chairman, I'd like to ask a question. Is that long-term agreement a private agreement?

CRADDICK: Yes, just like a oil lease, similar.

G. MARTIN: And now Mrs. Gadds signed that agreement, too?

CRADDICK: No. When they bought the property, this was an agreement that was to be passed, inherited by, anyone who bought the property would have to buy it with the understanding that this was an encumbrance on the title.

G. MARTIN: In other words, there was a stipulation that you purchase that property -?

CRADDICK: Yes.

G. MARTIN: These were the conditions you would purchase it under, right?

CRADDICK: Yes.

G. MARTIN: And everybody knew that?

CRADDICK: Yes.

G. MARTIN: How many people we're making reference to, how many residences?

CRADDICK: Six.

G. MARTIN: Six residences, people?

CRADDICK: No, not residences.

G. MARTIN: Six homeowners?

CRADDICK: They're mainland people.

G. MARTIN: Oh, mainland people?

CRADDICK: From California, yeah.

G. MARTIN: United States?

CRADDICK: Yeah. The Gadds are the only local people here.

CHAIRMAN: Any further questions? If not, thank you.

STOUT: I come forward again just to state for the record that the stipulations that you've made in this permit have no enforcement over those through the Health Department or for the protection of people, health and safety. You have no means of protecting those things. And I noticed it was read in the record that the letter from the Chamber of Commerce, and just to get out the facts, as Mr. Martin suggested, could I ask a question of the Board? How many people on the Board have ever been or are now members of Chambers of Commerce, JC's or involved in real estate? Both these things bear on this since it is a development thing. No one on the Board?

A. MARTIN: I would like to state for the record that I'm not a member of any of them.

STOUT: Okay, okay.

G. MARTIN: Or a church?

STOUT: Okay, well, my main thing here is just to state that there's no protection, you have no enforcement of any of these things you set down concerned with health and safety of the people there. Okay, and I hope each of you will stand personally behind your decision if they screw up. You know, if they screw up, I'd like to come back and ask each of you to stand behind your decision today. Okay, thanks.

THOMPSON: I hope that wasn't a threat.

STOUT: No, no. I just wanted to find out, I think there should be personal responsibility. See, when I ran an appliance store, I refused to sell microwave ovens because even though they met the safety standards, they didn't meet safety standards for almost every other country in the world. The American safety standards are very, you know, lax when it comes to microwave exposure. So I refused to sell them because even though the danger is minor, I figured, you know, I don't want to be responsible for something that happens down the line. You have to take personal responsibility. This is the day that corporations come in. When corporations come in, they do things and then no one is responsible. When something goes wrong, it's no one's fault. There's no one in the corporation who will take the responsibility. No one will take personal responsibility for what they do. So I don't really expect you to do that. I would just like to be able to come back to a meeting like this if they screw up and ask each of you to stand behind your decision today. That's not a threat. That's just asking for personal responsibility, taking responsibility for decision making.

THOMPSON: I think when I took this job -.

STOUT: Okay.

THOMPSON: I took it with my own -.

STOUT: All right, all right. In the past, okay, in the past down there when we were told we would create no nuisances to the surrounding community, neither noise or odor as was stated in the special permit, we went back to Mr. Fuke, back to the people involved, they denied responsibility. If you make the decision today, I just want to be able to come back when or if they screw up and be able to come back and say you stand behind your decision, you stand behind your decision. That's all. It's not a threat of any kind.

FUKE: Mr. Stout, Mr. Stout?

STOUT: Yes.

FUKE: I'd just like to point out for the record that there was never any representation on our part that there would never be any nuisance. We recognized that there were going to be nuisance; and it was our intent to structure conditions that would attempt to mitigate nuisances, not eliminate.

STOUT: Wasn't there a sentence in there that said will, oh, you said will mitigate any nuisances to surrounding community, noise or odor? I thought it said it will not create any nuisances to the surrounding community, neither noise nor odor.

FUKE: Again, what you're referring to is a suit that Puna Speaks lodged against the County.

STOUT: No, no, no law suit. This was based on the County wording.

FUKE: Well, what you're referring to is wording that is applicable to the HGP-A special permit conditions which now Judge Fong has to rule; and there was, as the Corporation Counsel's office pointed out, there are two sides to that issue.

STOUT: Okay, now on this permit, will you stand behind this one, too?

FUKE: The staff took a position, it's a recommendation, we stand by our recommendation.

STOUT: Okay.

G. MARTIN: Mr. Chairman, I just want to -.

CHAIRMAN: Commissioner Martin.

G. MARTIN: Ask a question. Are you saying that in your opinion this Commission won't stand behind their commitment?

STOUT: I have never seen the enforcement of these statutes by my obser, special things on the permit by this Commission. I have never seen enforcement of the, against the developer. Okay, I'm saying I haven't seen enforcement at all; and I don't think you have the means at your disposal to do the enforcement of the health and safety parts of this permit.

G. MARTIN: Well, this Commission is not a police agency. We do not do the policing. This is -.

STOUT: But.

G. MARTIN: Just one second, let me finish. This is an agency, a Commission that makes policy, okay. We have other staff people to enforce it. You have a responsibility to, as a member of this community, if you think or you feel that something is wrong, you have evidence -.

STOUT: I'm fulfilling that responsibility by being -.

G. MARTIN: That's contrary to the conditions laid out here, then it's your responsibility to notify us right now.

STOUT: Fine, do I notify each of you individually?

G. MARTIN: With our staff, you go through. You go to the Director of Planning.

STOUT: We have before. Okay, there's never been enforcement when we go through the staff. There's never enforcement as we go through the Health Department. Why make these stipulations if there's no enforcement? Isn't that a waste of effort on your part -?

G. MARTIN: You -.

STOUT: To make these stipulations on permit when you can't enforce it in the first place? If you have no means of enforcement, why make them? They're useless. This is like a front. This is a false thing that's set up to protect the people when there's nothing behind it.

G. MARTIN: That's your opinion. This is a new set of rules here. I think -.

STOUT: How will you enforce the air quality and noise standards?

G. MARTIN: We have our staff with other agencies to do that.

STOUT: Your staff won't process usually the complaint.

G. MARTIN: Well, I'm not sure that's exactly true.

STOUT: Okay, if we make -.

CHAIRMAN: Okay, gentlemen, I think we can go on and on. But is there anyone else who would like to testify? If not, Commissioners, you can either continue or close the public hearing.

A. MARTIN: Mr. Chairman, I move we close the public hearing.

CHAIRMAN: Is there a second?

HIRANO: Second.

CHAIRMAN: It was moved and seconded that the public hearing be closed. All those in favor signify by saying aye?

COMMISSIONERS: Aye.

CHAIRMAN: Oppose? Public hearing is closed.

On the amendment to Special Permit No. 471, it was moved by Commissioner A. Martin and seconded by Commissioner Kagawa that the request be approved for the reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

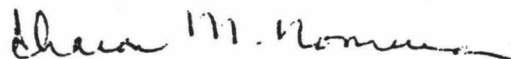
On the amendment to Special Permit No. 364, it was moved by Commissioner A. Martin and seconded by Commissioner Thompson to send a favorable recommendation to the State Land Use Commission for the reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

On the amendment to Special Permit No. 460, it was moved by Commissioner A. Martin and seconded by Commissioner Hirano to send a favorable recommendation to the State Land Use Commission for the

reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

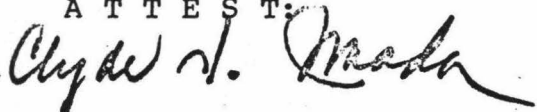
The public hearing adjourned at 4:11 p.m.

Respectfully submitted,



Sharon M. Nomura
Secretary

A T T E S T:



Clyde Imada
Chairman, Planning Commission

STATE OF HAWAII
LAND USE COMMISSION

Minutes of Meeting

Conference Rooms 322 A and B
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii

Approved
4/24/84

January 17, 1984 - 9:00 a.m.

COMMISSIONERS PRESENT: William Yuen, Chairman
Richard Choy, Vice Chairman
Lawrence Chun
Shinsei Miyasato
Winona Rubin
Robert Tamaye
Frederick Whittemore
Teofilo Tacbian

COMMISSIONER ABSENT: Everett Cuskaden

STAFF PRESENT: Gordan Furutani, Executive Officer
Benjamin Matsubara, Legal Counsel
Raymond Young, Planner
Dora Horikawa, Chief Clerk

Julie Sorenson, Court Reporter

ACTION

A83-561 - RICHFIELD OF HAWAII, INC.

It was announced by Chairman Yuen that the first item on the agenda was a determination by the Commission of whether the anticipated effects discussed in the environmental assessment filed by Richfield of Hawaii, Inc. constituted a "significant effect" pursuant to Chapter 343, Hawaii Revised Statutes.

Mr. Gordan Furutani, Executive Officer, oriented the Commission to the property under discussion.

Petitioner's representative, Mr. George Kaya, was called to the witness stand for examination.

George Kaya - Petitioner's representative

Examination by Commissioner Chun-----8 to 10

Upon motion by Commissioner Chun, seconded by Vice Chairman Choy, the Commission went into executive session to consult with its legal counsel at 9:21 a.m.

9:35 a.m.

Chairman Yuen advised Mr. Kaya that, based on the report on file, the Commission was unable to declare a negative assessment. It was suggested that petitioner withdraw the present report and refile another report covering an archaeological analysis of the property and the impact on the flora and fauna of the area, within 30 days.

DR83-9 - DOUGLAS MELLER (Declaratory Ruling)

It was moved by Vice Chairman Choy, seconded by Commissioner Rubin, to defer action on DR83-9, Douglas Meller. The motion was unanimously carried by voice vote.

SP83-358 - C. EARL STONER, JR. on Behalf of S. & F LAND COMPANY

Mr. Furutani presented background information pursuant to the subject special permit request. He also pointed out the area on the USGS and tax maps.

Commissioner Chun moved to approve SP83-358, C. Earl Stoner, Jr., et al, to allow the operation of a baseyard for the storage of construction equipment and material, the fabrication of large construction material items, and the storage of containerized household and freight goods on approximately 19.90 acres of land situated within the State Land Use Agricultural District at Puunene, Wailuku, Maui. It was seconded by Commissioner Whittemore.

Commissioner Chun agreed with Commissioner Rubin's understanding that his motion to approve the special permit included the conditions imposed by the Maui Planning Commission.

The motion was carried by voice vote.

✓ SP77-265 - GEOTHERMAL EXPLORATION & DEVELOPMENT CORPORATION
SP80-347 - " " " "

Staff planner, Raymond Young, briefed the Commission on the requests for time extensions and modification of conditions relating to the drilling of the geothermal exploratory wells. He also responded to questions which were raised by Commission members.

The Commission went into executive session from 9:54 a.m. to 10:01 a.m., upon motion by Commissioner Rubin, seconded by Commissioner Chun.

10:01 a.m.

Chairman Yuen announced that the Commission had consulted with its Deputy Attorney General with respect to the consolidated requests by the petitioner.

Commissioner Chun moved to approve SP77-265, Geothermal Exploration & Development Corporation's request for a time extension and modification of conditions relating to the drilling of five geothermal exploratory wells on approximately 180.475 acres of land situated within the State Land Use Agricultural District at Opihikao, Puna, Hawaii; and SP80-347, Geothermal Exploration & Development Corporation's request for a time extension and modification of conditions relating to the drilling of 8 geothermal exploratory wells on approximately 118.180 acres of land situated within the State Land Use Agricultural District at Laepaoo, Puna, Hawaii; subject to the condition that the petitioner indemnify the Land Use Commission and Commissioners and hold them harmless, pursuant to an agreement satisfactory to the Land Use Commission's counsel.

It was seconded by Vice Chairman Choy.

Chairman Yuen declared that he would like the record to reflect that the petitioner indemnify the Commission as to the existing lawsuit and to any future litigation that might arise from the Commission's approval of these petitions.

It was also agreed that the 20 conditions imposed by the Hawaii County Planning Commission would apply to the Land Use Commission's approval.

The motion was unanimously approved by voice vote.

A83-559 - WALTER FILIPEK

It was announced by the Chairman that the next item concerned the acceptability of the Environmental Impact Statement of the petition by Walter Filipek to reclassify approximately 15.8 acres of land from the Conservation District into the Urban District at Kapalaoa, North Kona, Hawaii for a multi-family residential development.

Mr. Arnold Abe, attorney representing the petitioner, was called forward for examination by the Commission.

STATE OF HAWAII
LAND USE COMMISSION

VOTE RECORD

ITEM SP77-265 - Geothermal Exploration & Development Corporation DATE January 17, 1984
PLACE Conf. Rms. 322 A&B, Kalanimoku Bldg. TIME 9:00 a.m.
1151 Punchbowl St.
Honolulu, Hawaii

NAME	YES	NO	ABSTAIN	ABSENT
MIYASATO, SHINSEI				
CUSKADEN, EVERETT L.				
CHUN, LAWRENCE F.				
RUBIN, WINONA E.				
TACBIAN, TEOFILO PHIL				
CHOY, RICHARD B. F.				
TAMAYE, ROBERT S.				
WHITTEMORE, FREDERICK				
YUEN, WILLIAM W. L.				

Commissioner Chun moved to approve SP77-265, Geothermal Exploration & Development Corporation's request for a time extension and modification of conditions relating to the drilling of five geothermal exploratory wells on approximately 180.475 acres of land situated within the State Land Use Agricultural District at Opihikao, Puna, Hawaii; and SP80-347, Geothermal Exploration & Development Corporation's request for a time extension and modification of conditions relating to the drilling of 8 geothermal exploratory wells on approximately 118.180 acres of land situated within the State Land Use Agricultural District at Laepaoo, Puna, Hawaii; subject to the condition that the petitioner indemnify the Land Use Commission and Commissioners and hold them harmless, pursuant to an agreement satisfactory to the Land Use Commission's counsel.

It was seconded by Vice Chairman Choy.

Passed by voice vote.

STATE OF HAWAII
LAND USE COMMISSION

NOTIFICATION OF LAND USE COMMISSION MEETING

DATE, TIME AND PLACE

January 17, 1984 - 9:00 a.m.
Conference Rooms 322 A and B
Kalanimoku Building
1151 Punchbowl Street
Honolulu, Hawaii

REC'D. BY

1984 JAN 10 PM 12 14

LT. GOVERNOR'S OFFICE

A G E N D A

I. ACTION

1. A83-561 - Richfield of Hawaii, Inc. (HAWAII)

To determine whether the anticipated effects discussed in the Environmental Assessment of Richfield of Hawaii, Inc. to reclassify approximately 74.9 acres of land currently in the Conservation District into the Agricultural District at Kapoho, Puna, Hawaii, for agricultural use constitute a "significant effect" pursuant to Chapter 343, Hawaii Revised Statutes.

2. SP83-358 - C. Earl Stoner, Jr., on behalf of S & F Land Company (MAUI)

To allow the operation of a baseyard for the storage of construction equipment and materials, the fabrication of large construction material items, and the storage of containerized household and freight goods on approximately 19.90 acres of land situated within the State Land Use Agricultural District at Puunene, Wailuku, Maui.

✓ 3. SP77-265 - Geothermal Exploration & Development Corporation (HAWAII)

Request for a time extension and modification of conditions relating to the drilling of 5 geothermal exploratory wells on approximately 180.475 acres of land situated within the State Land Use Agricultural District at Opihikao, Puna, Hawaii.

4. SP80-347 - Geothermal Exploration & Development Corporation (HAWAII)

Request for a time extension and modification of conditions relating to the drilling of 8 geothermal exploratory wells on approximately 118.180 acres of land situated within the State Land Use Agricultural District at Laepaoo, Puna, Hawaii.

5. DR83-9 - Douglas Meller (OAHU)

To act upon a request for declaratory ruling regarding the shoreline and zone of wave action.

6. A83-559 - Walter Filipek (HAWAII)

To consider Walter Filipek's Environmental Impact Statement to reclassify approximately 15.8 acres of land currently in the Conservation District into the Urban District at Kapalaoa, Puuanahulu, North Kona, Hawaii, for a multi-family residential development.

II. HEARING

1. A83-558 - MSM & Associates, Inc. (OAHU)

To reclassify approximately 181 acres of land currently in the Agricultural District into the Urban District at Oneula, Ewa, Oahu, for a marina, residential and commercial development.

III. MISCELLANEOUS

1. Adoption of Minutes

NOV 22 1983

2. Tentative Meeting Schedule

1/6/84 - A copy of this agenda was mailed to all persons and organizations on the attached mailing lists:

1. STATEWIDE
2. OAHU
3. HAWAII
4. MAUI-MOLOKAI-LANAI
5. KAUAI

STATE OF HAWAII
LAND USE COMMISSION
Room 104, Old Federal Bldg.
335 Merchant Street
Honolulu, Hawaii 96813

January 6, 1984

Mr. Sidney Fuke
Planning Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96729

Dear Mr. Fuke:

Enclosed is a Land Use Commission meeting agenda.

Please note that petitions

A83-561 - RICHFIELD OF HAWAII, INC. (Environmental Assessment)

✓ SP77-265 - GEOTHERMAL EXPLORATION & DEVELOPMENT CORPORATION

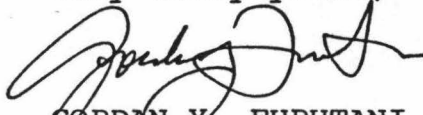
SP80-347 - GEOTHERMAL EXPLORATION & DEVELOPMENT CORPORATION

A83-559 - WALTER FILIPEK (Environmental Impact Statement)

will be considered at that time.

Should you have any questions on these matters, please contact this office.

Very truly yours,


GORDAN Y. FURUTANI
Executive Officer

Enclosure: Agenda

STATE OF HAWAII
LAND USE COMMISSION
Room 104, Old Federal Bldg.
335 Merchant Street
Honolulu, Hawaii 96813

January 6, 1984

Mr. E. C. Craddick, President
Geothermal Exploration & Development Corporation
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

Dear Mr. Craddick:

Enclosed is a Land Use Commission meeting agenda.

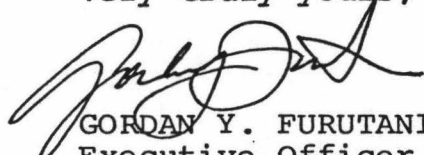
Please note that petition(s)

✓
SP77-265 - GEOTHERMAL EXPLORATION & DEVELOPMENT CORPORATION
SP80-347 - GEOTHERMAL EXPLORATION & DEVELOPMENT CORPORATION

will be considered at that time.

Should you have any questions on this matter, please
contact this office.

Very truly yours,


GORDAN Y. FURUTANI
Executive Officer

Enclosure: Agenda



COUNTY OF
HAWAII

PLANNING COMMISSION

25 AUPUNI STREET • HILO, HAWAII 96720

December 15, 1983

Mr. Gordan Furutani
Executive Officer
Land Use Commission
Old Federal Building, Room 104
335 Merchant Street
Honolulu, HI 96813

Dear Mr. Furutani:

Amendment to Special Permit No. 364
Petitioner: Geothermal Exploration and Development Corporation
Tax Map Key 1-3-01:Portion of 24 and 25

In accordance with Chapter 205, Section 205-6, Hawaii Revised Statutes, we are transmitting the decision and findings of the County Planning Commission on the above application.

The request is to amend conditions relating to time and performance of Special Permit No. 364. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program. The property involved is located on the northwestern or Paho side of Opihikao Road, approximately 2.5 miles from the junction of Opihikao Road and the Paho-Kalapana Road, Opihikao, Puna, Hawaii.

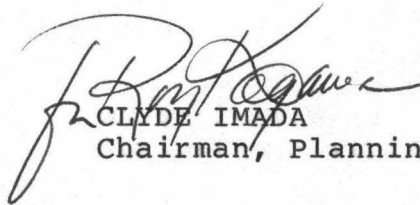
The Planning Commission at its duly advertised public hearing on November 22, 1983, at the Hilo Armory, Hawaii Redevelopment Agency's Conference Room, South Hilo, Hawaii, discussed the subject request and voted to recommend approval of the amendment to Special Permit No. 364 to the Land Use Commission. Enclosed is the entire docket on the application.

Dec 19 2 21 PM '83
LAND USE COMMISSION
STATE OF HAWAII

Mr. Gordan Furutani
Page 2

Should you have any questions, please feel free to contact the Planning Department.

Sincerely,



CLYDE IMADA
Chairman, Planning Commission

Enclosure

cc: Geothermal Exploration and
Development Corporation
DPED, Land Use Division
Department of Public Works
Department of Water Supply
Bill Tam, Deputy Attorney General

PERMANENT RECORD
SOUTHWORTH CO. U.S.A.
10% COTTON FIBER CONTENT

LIST OF EXHIBITS: GEOTHERMAL EXPLORATION & DEVELOPMENT CORP.
(SP NO. 364)

Exhibit A - Letter to Planning Department from E. C. Craddick dated September 28, 1983 (w/atts.)

Exhibit A-1 - Letter to Planning Department from E. C. Craddick dated October 31, 1983 (watts.)

Exhibit B - Letter to E. C. Craddick from Planning Director dated November 8, 1983

Exhibit C - Letter to E. C. Craddick from Planning Director dated November 7, 1983 - (w/atts.)

Exhibit D - Letter to Planning Director from E. C. Craddick dated November 15, 1983 (w/atts.)

Exhibit E - Consolidated Findings

Exhibit F - Consolidated Background

Exhibit G - Letter to Planning Commission from H. Stuart Kearns, Director, Dept. of Research & Development, dated November 22, 1983

Exhibit H - Record of Voting - November 22, 1983 PC Meeting

Exhibit I - Letter to Richard West, President, Hawaii Island Chamber of Commerce from Planning Director dated November 25, 1983

Exhibit J - Letter to E. C. Craddick from PC Chairman dated November 28, 1983

Exhibit K - Hearing transcript - November 22, 1983 PC meeting

Exhibit L - Minutes - November 22, 1983 PC meeting

CERTIFIED MAIL

November 28, 1983

Mr. E. C. Craddick
Geothermal Exploration and
Development Corporation
2828 Paa Street, Suite 2085
Honolulu, HI 96819

Dear Mr. Craddick:

Amendment to Special Permit No. 364
TMK: 1-3-01:Portion of 24 and 25

The Planning Commission at its duly held public hearing on November 22, 1983, considered the amendment to Special Permit No. 364, at Opihikao, Puna, Hawaii.

The Commission voted to forward a favorable recommendation to the Land Use Commission for the above-stated amendment, based on the following findings:

The approval of the time extension request will not be contrary to the purpose and intent of the time condition. The purpose of stipulating time conditions is to assure that any proposed development come to fruition in a timely manner. In this particular case, the Special Permits have been granted to allow the drilling of exploratory geothermal wells for the purpose of assessing geothermal potential for the area. During the initial lifespan of the permits the petitioner has completed the drilling of three wells. These wells have not encountered sufficient permeability to be useful for flow tests. Furthermore, the drilling program encountered previously unexpected field conditions relating to extremely high temperatures which required modifications to casing materials and cementing procedures. The information obtained from the initial drilling activity required more time to analyze and

EXHIBIT I

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modifications to subsequent drilling programs which were not anticipated during the original planning for the permits. Consequently, a revised drilling program has been developed which requires additional time to collect and evaluate technical information to adequately determine the extent and capacity of the geothermal reservoir in the area..

The work which has been completed to date represents a significant investment and clear commitment to conduct the activities allowed by the Special Permit.

Approval of the four-year time extension will provide sufficient time for the petitioner to complete the exploration program in a safe and efficient manner. Furthermore, approval of the subject request will not alter the reasons for which the permit was originally approved nor increase any of the expected impacts of the project.

The County of Hawaii has long been a supporter of geothermal development. Policies contained in the General Plan support this commitment. Actions such as the approval of several geothermal exploration programs through the Special Permit process and partial funding of the HGP-A program reflect the County's support and interest in geothermal development.

At the same time, we are supportive of the orderly growth and development of this island. We are thus mindful of the need to assure that a development works for and not against the County. Care must therefore be taken to balance the social, economic, and environmental impacts of any development.

There are certain land use activities that have been with us for a good number of years. These include housing, resort development, agriculture and recreation. Having been with us for decades, regulations have evolved and are already in place. Yet, as problems and/or different issues emerge, these regulations are amended or new ones are created to more accurately achieve the appropriate social, economic, and environmental balance.

Geothermal development, while already practiced elsewhere, is relatively new here. Our knowledge and experience with geothermal development is understandably rather limited; but has increased tremendously since the first exploration permit was issued six years ago and will continue to grow and expand as geothermal activities move forward. Its infancy, to some extent, partially accounts for the absence of clear cut regulations and standards to guide its development while taking care of its "externalities" or off-site problems.

We believe that geothermal development in the State at this stage is faced with a dilemma. On one hand, we have a policy desire and spirit to engage in a new field (geothermal); and on

the other, its infancy contributes to the absence of comprehensive regulations. The regulations will invariably help shape and direct geothermal development; similarly, as geothermal activities occur, regulations will be shaped and re-shaped.

It is within this framework that we are supportive of the petitioner's proposal. In the absence of comprehensive regulations governing geothermal development, we believe that a mutual spirit of give and take must be established to guide the continued efforts of exploratory drilling programs. As such, while we recommend approval of the request to extend the life of the permits and to grant additional flexibility in the drilling program, we are also taking this opportunity to recommend that additional conditions be imposed to reflect the increased body of knowledge which has been acquired since the existing conditions were adopted. It should be further noted that the number of wells allowed by each of the permits will remain the same.

Based on the foregoing, the Commission further recommended that the permit be issued under the name of Barnwell Geothermal Corporation and that the following set of conditions be adopted, replacing those which are now in effect:

1. The petitioners, its successors or assigns shall be responsible for complying with all of the stated conditions of approval.
2. Prior to the commencement of any grubbing or grading activity, the petitioner shall:
 - a. Provide a metes and bounds description of the well site(s) and access road right-of-way(s) to the Planning Department;
 - b. Mark the boundaries of the designated well site(s), and the access road right-of-way(s), and no construction or transportation equipment shall be permitted beyond the prescribed boundaries of the said well site(s) and road right-of-way(s);
 - c. Conduct an archaeological reconnaissance survey for the proposed well site(s) and access road right-of-way(s) and submit it to the County Planning Department for review; and
 - d. Comply with all requirements of the County grading ordinance.
3. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or its designee a noise monitoring plan to be implemented when the

well drilling and testing period begins. This plan should allow the coordination of noise complaints with noise measurements, the meteorological conditions, and the type of operations which occurred at the well site. The data obtained shall be available upon request by the appropriate governmental agencies including the Planning Department. The noise monitoring program shall be in operation during all active phases of the project.

4. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or designee an air quality monitoring plan to be implemented when the well drilling period begins. The plan shall include provisions for installation, calibration, maintenance and operation of recording instruments to measure air contaminant concentrations. The specific elements to be monitored, the number of stations involved and the frequency of sampling and reporting shall be specified by the Planning Department or its designee. The air quality monitoring program shall be in operation during all phases of the project.
5. Prior to any drilling activity the petitioner shall submit and secure approval from the Hawaii County Civil Defense Agency a plan of action to deal with emergency situations which may threaten the health, safety and welfare of the employees/persons in the vicinity of the proposed project. The plan shall include procedures to facilitate coordination with appropriate State and County officials as well as the evacuation of affected individuals.
6. The petitioner shall maintain a record in a permanent form suitable for inspection and shall make such record available on request to the Planning Department or its designee. The record shall include:
 - a. Occurrence and duration of any start-up, shut-down and operation mode of any well/facility.
 - b. Performance testing, evaluation, calibration checks and adjustment and maintenance of the continuous emission monitor(s) that have been installed.
 - c. Emission measurements reported in units compatible with applicable standards/guidelines.
7. The petitioner, its successors or assigns shall apply the "Best Available Control Technology" (BACT) with respect to geothermal emissions during all phases of the project, including well drilling and testing. "Best available control technology" means the maximum degree of control for noise and air quality concerns taking into account what is known to be practical but not necessarily in use. BACT

shall be determined by the Planning Department in consultation with other appropriate governmental agencies involved in the control or regulation of geothermal development. Compliance with applicable noise and air quality regulations or guidelines shall be deemed to meet the BACT requirement. Should it be determined that BACT is not being employed, the Planning Department is authorized to take any appropriate action including suspension of any further activities at the project site or referral of the matter to the Planning Commission for review and disposition.

8. Unabated open venting of geothermal steam shall be prohibited unless prior approval is received from the Planning Department or its designee. The Planning Department or its designee shall permit unabated open venting only when all other reasonable alternatives have been deemed to be unacceptable. Venting for all other situations shall be permitted only when accompanied by appropriate sound and chemical abatement techniques approved by the Planning Department or its designee.
9. The petitioner shall provide, install, calibrate, maintain and operate a meteorological station and conduct continuous meteorological monitoring at the site or at another location as may be mutually agreed to by the petitioner and the Planning Department. The data shall be provided in a format agreeable to the Planning Department on a monthly basis and shall include temperature, wind velocity, wind direction and other information deemed necessary by the Planning Department.
10. The petitioner shall publish a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drill site, 24 hours a day, to respond to any local complaints.
11. The petitioner shall submit a status report to the Planning Department on a biannual basis (by the first day of January and July of each year), or, within 30 days of the completion of any exploratory well. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including drilling activity report;
 - b. A description of the work being proposed over the next reporting period;
 - c. The results of the environmental/noise monitoring activities;

- d. A log of the complaints received and the responses thereto;
 - e. The current status of exploration activities in the context of long-range development goals; and
 - f. Any other information that the Planning Department may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.
12. Until such time as noise regulations are adopted by the State or County, the petitioner shall comply with the following guidelines which shall be enforced by the Planning Department:
- a. A general noise level of 55 dba during daytime and 45 dba at night shall not be exceeded except as allowed under b and c. For the purposes of these guidelines, night is defined as the hours between 7:00 p.m. and 7:00 a.m.;
 - b. The allowable noise levels may be exceeded by a maximum of 10 dba; however, in any event, the generally allowed noise level should not be exceeded more than 10% of the time within any 20 minute period;
 - c. The noise level guidelines may be waived only for the specified duration of authorized open venting periods;
 - d. The noise level guidelines shall be applied at the existing residential receptors which may be impacted by the geothermal operation; and
 - e. Sound level measurements shall be conducted using standard procedures with sound level meters using the "A" weighting and "slow" meter response unless otherwise stated.
13. A disposal site or sites, approved by the State Department of Health, shall be provided for sump contents and other waste materials to be disposed of from the drilling activity.
14. All sumps/ponds shall be purged in a manner meeting with the approval of the State Department of Health.
15. When wells are completed or abandoned, all denuded areas on and around the drilling site shall be revegetated in a manner meeting with the approval of the Planning Department.
16. The petitioner shall grant unrestricted access of the subject property(ies) to authorized governmental

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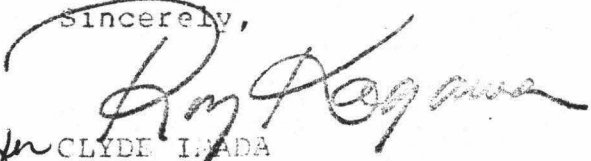
representatives or to consultants or contractors hired by governmental agencies for inspection, enforcement, or monitoring activities. A designated employee shall be available at all times for purposes of supplying information and responses deemed necessary by the authorized governmental representative in connection with such work.

17. The petitioner will drill at least one new exploratory well each year either under this permit or under other such permits held by the petitioner.
18. The petitioner shall comply with the requirements of Chapter 14, Article 9 of the Hawaii County Code, relating to outdoor lighting.
19. This special permit shall be effective until December 31, 1987, or upon the successful completion of 3 exploratory wells, whichever occurs sooner. Successful, for the purposes of this condition, is defined as having a field tested capacity of 3 megawatts each.
20. All other applicable rules, regulations and requirements, including those of the State Department of Health and the State Department of Land and Natural Resources shall be complied with.

Should any of the foregoing conditions not be met, the permit shall be automatically void.

Should you have any questions, please feel free to contact the Planning Department at 961-8288.

Sincerely,


for CLYDE IKADA

Chairman, Planning Commission

cc: DPED, Land Use Division
Building Division, Public Works
Dept. of Water Supply
Bill Tam, Deputy Attorney General

bcc: Plan Approval Section

PLANNING COMMISSION

Planning Department
County of Hawaii

HEARING TRANSCRIPT
November 22, 1983

A regularly advertised public hearing on the applications of Barnwell Geothermal Corporation and Geothermal Exploration and Development Corporation was called to order at 3:15 p.m. in the Hilo Armory, Hawaii Redevelopment Agency's Conference Room, South Hilo, Hawaii, with Chairman Clyde Imada presiding.

PRESENT:	Clyde Imada	ABSENT:	Clarence Mills
	Thomas Hirano		George Ponte
	Roy Kagawa		
	Barbara Koi		
	Arthur Martin		
	George Martin		
	Donald Thompson		

Sidney M. Fuke, Planning Director
Keith Kato, Staff Planner
Brian Nishimura, Staff Planner

R. Ben Tsukazaki, Deputy Corporation Counsel

and approximately 24 people from the public in attendance

CHAIRMAN: Public hearing on the application of Barnwell Geothermal Corporation to amend conditions relating to time performance of Special Permit No. 471. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program. The property involved is located along the south side of Pohoiki Road and about 1,500 feet from the HGP-A well, at its nearest point, adjacent to and on the makai side of Leilani Estates and Lanipuna Gardens Subdivisions, Keahialaka, Puna, TMK: 1-3-8:6, 7, 19 and 1-3-9:Portion of 7. Staff?

NISHIMURA: Mr. Chairman, maybe I should get the advice of the Deputy Corporation Counsel; but there are three items listed here for 2 o'clock, Barnwell Geothermal Corporation, Geothermal Exploration and Development Corporation and, or two by Geothermal Exploration and Development Corporation. I would like or I would like to suggest that these hearings be consolidated as the background and findings for these have been consolidated. Barnwell, well, Geothermal Exploration and Development Corporation is a subsidiary of Barnwell Geothermal Corporation; and as part of the time extension request, they're also requesting that the two other permits issued under Geothermal Exploration and Development Corporation be reissued under the name of Barnwell. And, for that reason, I would like to request that the hearings for the three requests be consolidated.

CHAIRMAN: Okay, is it okay with the applicant?

CRADDICK: Yes.

CHAIRMAN: If it's okay with the applicant, then you may proceed.

THOMPSON: Mr. Chairman?

CHAIRMAN: Commissioner Thompson.

THOMPSON: Are we going to accept this as a complete one or are we eventually coming to three applications -?

CHAIRMAN: We're going to have to take each individual -.

THOMPSON: Individual?

CHAIRMAN: Yeah, action separately.

THOMPSON: Because I notice on the tax key they are not all in one location.

CHAIRMAN: So we'll take it individually.

NISHIMURA: That's correct; and the permits would also remain separate.

(Amended the agenda to indicate that the correct tax map key for Special Permit 471 is 1-3-8:portions of 6, 19, 23-32; oriented the Commission and public of the subject and surrounding properties; and presented background and findings for approval with conditions on Special Permit Nos. 471, 364 and 460, on file.)

And, again, I would like to remind the Commissioners that the recommendation also includes the recommendation to change the name of the permits to be issued all under the name of Barnwell Geothermal Corporation, although the three permits will still remain separate.

CHAIRMAN: Commissioners, any questions of staff?

A. MARTIN: Mr. Chairman?

CHAIRMAN: Commissioner Martin.

A. MARTIN: Did you want to include in here that the biennial report by January 1st and July 1st?

NISHIMURA: Thank you, Commissioner Martin. Yes, it is our intention that the same addition be provided for the Barnwell permits; and I shall so reflect it, that the reports are due prior to July, well, January 1st and July 1st of each year.

CHAIRMAN: Any further questions?

THOMPSON: Mr. Chairman?

CHAIRMAN: Commissioner Martin, Thompson, I'm sorry.

THOMPSON: There's two Martins here, that's enough, more than enough. Just a question or point of information. Did you read into the record, what you call, the Hawaii Island Chamber of Commerce's letter?

NISHIMURA: I should have, thank you. The record shall so reflect the support of the Hawaii Chamber of Commerce's letter.

CHAIRMAN: Any other questions? If not, is the applicant or representative present?

CRADDICK: Yes. My name is Ed Craddick. I'm the president of Barnwell Geothermal Corporation.

CHAIRMAN: Mr. Craddick, can I swear you in. Do you solemnly swear to tell the truth, the whole truth and nothing but the truth?

CRADDICK: I do.

CHAIRMAN: Mr. Craddick, are you able to comply with the conditions as stated?

CRADDICK: Yes, we are. I would like to clarify one point, if I could. The condition 19 stipulates that successful program will be upon the completion of three successful wells. That means in each of the three projects? I wasn't sure whether that -.

NISHIMURA: That's correct, because these conditions apply to each of the permits.

CRADDICK: To each project, right.

I just wanted to clear that, find out. Otherwise, we're in complete accordance with the conditions and intend to abide by them and comply fully with them.

CHAIRMAN: Commissioners, any questions of the applicant?

THOMPSON: Mr. Chairman? I just have one of Mr. Craddick.

CHAIRMAN: Commissioner Thompson.

THOMPSON: In that, you're asking for an extension and the Dillingham outfit is also asking for an extension; and yet it seems like you're doing their drilling and you're the only outfit who has the rigs here. Will this conflict with this extension?

CRADDICK: No. At the present time, we are the only drilling company in the island. We have worked into this program the possibility that we would be doing work for both of our projects. So we have allowed for that in there; and the time we have asked for would permit us to do both.

CHAIRMAN: Any further questions?

G. MARTIN: Yes, Chairman.

CHAIRMAN: Commissioner Martin.

G. MARTIN: Mr. Craddick, you have heard the conditions read out today?

CRADDICK: Yes.

G. MARTIN: And you know the concern of our public members, too, with regard to safety and health?

CRADDICK: Yes, we do.

G. MARTIN: I hope you understand that if that's violated this Commission, with whatever means they have, will do everything to just stop operations.

CRADDICK: Right. We have always tried, and successfully as we possibly could, to abide by those. In addition to the, right, to the limits that are imposed upon us, of course, we're aware that there are nuisance limits that we have to pay attention to; and we do that also. We started this work, oh, in 1980. Our drilling equipment hadn't been tested out for noise. Since that time both Thermal Power and our Company have spent substantial money in sound abatement equipment on the drilling rig; and we have kept it down now. I think the word is tolerable. We have just spent some money on hydrogen sulfide detecting to make sure that if any is on the job that we detect it before it can do any damage. So we have learned a lot in the last two years ourselves about a successful operation and one that takes into full account the concerns of the public and the nuisance factors that it does impose upon them during the course of the work.

We've tried to work, cut out weekends when we could; and we have done that work in a five-day week. Sometimes we can't do that but we've been very cognizant of this problem; and we remain that way.

G. MARTIN: Thank you.

CHAIRMAN: Any further questions?

A. MARTIN: Mr. Chairman?

CHAIRMAN: Arthur Martin.

A. MARTIN: Mr. Craddick, do you feel that if we extend the time that from what you have learned in the past that you will be able to stay within the different factors of noise and that as you, of what you've done before?

CRADDICK: Yes, yes, I do. And we, like I say, we've learned a lot about the thing and I think we can, the public will be surprised at how much progress we've made in that respect. We also have plans to cut down the length of time that we'll be on each project. We found ways of cutting down the drilling time in addition to that; and I believe that will contribute considerably.

CHAIRMAN: If there's no other questions, thank you, Mr. Craddick.

CRADDICK: Thank you.

CHAIRMAN: This is a public hearing. Can I have a show of hands of those of you that want to testify? Okay, well, let me swear both of you in, well, all of you in. Will you please rise. Anybody else that wants to testify? Do you solemnly swear to tell the truth, the whole truth and nothing but the truth?

TESTIFIERS: I do.

CHAIRMAN: Ma'am, you want to start first?

GADD: My name is Cheryl Gadd. I'm vice president of the Greg Gadd Real Estate Incorporated; and we own a portion of a piece of land which Barnwell is currently commencing to drill upon. We also own a home that's approximately 400 feet from this drilling site; and there's a family in the house. My main concern is for the family living in the house and any other people that do live in the area. It seems like I heard a lot about how much you've learned or the corporations and the geothermal companies have learned, while they're doing this, and it seems like there's a still lot more to learn. And I feel that there is, it's really not safe to experiment around people when you really don't know what the outcome is from the things that are happening. And we're also concerned with the pollution factors to the air and to the water. Since this house is close to the drilling site, we're wondering if there has ever been any tests done to monitor water that is so close to a drilling site; and, if not, we feel that those tests should be completed before there is any more drilling continued. And we're also concerned with the noise level during and after a drilling operation. And we understand that the noise level cannot exceed 55 decibels. So 40 decibels would be equivalent of a living room, a quiet office; 50 decibels is like light auto traffic at 100' and 60 decibels is like an air conditioning unit at 20'. ...(inaudible).

We're wondering means, the Commission has to stop the operation in the event of violations. It seems like it's harder to stop things once it's started and it's easier to do things in the beginning. We're also concerned about the fact that prime agriculture land is being used to conduct these experiments, along with an area where people are living. And as a landowner, it seems like we don't have much choice in how our property is being used. And we're concerned about who's going to be monitoring the noise levels and pollution level. And future accidents, there was an accident a while back on the drill site that wasn't reported for about a long time; and we're concerned about liability in case of an accident. Being landowners, are we going to be held liable if something happens or if people are found to be in, sick maybe many years later? We are, for the record, we're against any further experimentation of our lands until we can be sure that it is safe.

CHAIRMAN: Is that it, Cheryl?

GADD: Uh huh.

CHAIRMAN: Did you say that they're going to drill on your property?

GADD: We own an interest in a piece of property that the Barnwell Company is commencing to drill upon.

CHAIRMAN: Did you sign an agreement?

GADD: I understand that there's a leasehold over all of that property.

CHAIRMAN: What is your interest in this?

GADD: We own a portion of it -.

CHAIRMAN: You own in fee a portion of that property?

GADD: And the house we own is 400 feet away that has tenants in it.

CHAIRMAN: The house, is the house on the same property as where they're going to be drilling?

GADD: No the house is on a different piece of property. It's 400 feet away from the drilling site. It's a different piece of property. This is in the Lanipuna.

NISHIMURA: Mr. Chairman?

CHAIRMAN: Brian.

NISHIMURA: For point of clarification, I believe that the house she's talking about is situated in the Lanipuna Gardens Subdivision. I believe it's a one-acre subdivision situated here. The locations that we show here for the proposed well sites are not exactly where that next well is proposed to be drilled. However, it is in relatively close proximity to the dwelling in Lanipuna Gardens. The ownership situation as far as I could gather, and I think that it would be best to ask the applicant to provide us with any information that they have regarding the ownership situation, but my understanding is that the Gadd's as well as others own a, they have an agreement of sale on the property and the title is still held by J.T. Trading. But I have not see any of the deed documents to indicate, you know, what kinds of agreements have been made regarding the geothermal rights. So I would advise the Commission to, if they're concerned about those issues, to ask the applicant to try to clarify, you know, through the information that they have on that.

CHAIRMAN: Commissioners, any questions of -?

A. MARTIN: Mr. Chairman?

CHAIRMAN: Commissioner Martin.

A. MARTIN: Just to get clear in my mind, this piece of property, did you recently come in, your interest in the property, was it something recent after the original agreement was made with the company?

GADD: How recently would that be? It's been couple of years, close to three years.

A. MARTIN: It sounds like you came in part ownership after the original -.

GADD: The leasehold?

A. MARTIN: The original agreement was made for the geothermal. It sounds to me that way.

GADD: I'm not sure.

NISHIMURA: Again, Mr. Chairman, for clarification, that permit was issued December 16, 1980, by the Planning Commission. At that time, there was a subdivision application pending in our office by J.T. Trading Company involving, I mean a proposed subdivision involving the area that the Gadds now have an interest in. So the subdivision of that parcel occurred after the special permit was issued for the geothermal drilling.

CHAIRMAN: So actually when they bought the property, you know, more or less they should have known -.

NISHIMURA: The permit was already issued.

CHAIRMAN: Yeah. You kind of knew that development, geothermal development, was going to, was there, huh?

GADD: Probably so.

CHAIRMAN: Okay, Commissioners?

THOMPSON: Mr. Chairman?

CHAIRMAN: Commissioner Thompson.

THOMPSON: Are you presently receiving any remuneration from that interest in that particular piece of property from anyone?

GADD: Any what?

THOMPSON: Any rental from it, any type of -?

GADD: Yes, the house is being rented out. The house has tenants in it.

THOMPSON: But when you talk about the house, we're talking about two separate properties, right?

GADD: Uh huh.

THOMPSON: But how I hear it or I understand it, you're saying that you have an interest in the geothermal area also?

GADD: Uh huh.

THOMPSON: Are you receiving any portion, any dollars from -.

GADD: Some of the other people who own the property have been working with the Barnwell industry, Barnwell Company, and they have been negotiating and they have been compensated for the papayas that they grow, though. There has been compensation for that.

THOMPSON: And you happen to be the only one left out?

GADD: We, the land, I'm not sure how those, call, exactly, I know what you want to know, but I'm not sure how to answer it. Our interest doesn't include exactly where they're drilling, I think.

THOMPSON: Well, the reason I'm asking this question is that, to clarify myself, is that I don't want to belabor this thing and say, hey, look, you knew this particular site was being developed at some time but all of a sudden you find that they're going to do it next week sometime. And are you, I'm just butting out and we're awakening you at this time.

GADD: I understand that, but I believe that the issue is the extension that, that's being applied for to go, continue for three or four more years.

THOMPSON: All right, I get your point. You're just doing your part to let the people know that you're against it.

GADD: That we're concerned because there are people living very close to the drilling site, more than anything.

THOMPSON: Thank you.

CHAIRMAN: Perhaps the applicant can, you know, fill us in a little bit about her situation.

A. MARTIN: May I ask one more question?

CHAIRMAN: Commissioner Martin.

A. MARTIN: I wanted to ask a question.

CHAIRMAN: Cheryl, Commissioner Martin wants to ask you one question.

A. MARTIN: You're one of several owners of the property, is that right?

GADD: Right.

A. MARTIN: How do the other owners of the property feel, do you know?

GADD: I know that for a while they were trying to work out, I believe, to sell the property; but Mr. Craddick knows more about that than I do.

CRADDICK: The property in question was, goes back to June 1980 when we worked on the geothermal lease agreement with J.T. Trading Company; and then with the understanding, of course, in that, anyone who bought any of that property later on would have to get this encumbrance that continued with the property. At that time we also had the hearings here. We started out these six wells and so it was public knowledge where the location of those wells or future wells would be whenever we drilled on them. So it seems like anybody who would go in there and buy the property would, should be aware that this encumbrance is there.

Now we still are obligated under our, under the terms of our agreement to compensate for any damage that is done. Now the first time that we've had to really do that is with this papaya crop that was planted seven months or eight months ago; and at the time we decided move on that site. At this stage, they told us that their papaya was growing there. So we did have an evaluation of the

crop and we arrived at a settlement. There were, I think, six members to this group. All of the others signed it and agreed and we paid them the cash amount that they asked for, with the stipulation that if there's any other further damage or they can demonstrate any more loss that we will compensate them for any reasonable, fair amount of that, too. So we intend to live up to our obligations in that way. Any damage that we do to anybody, we are obligated to under our agreement to compensate them for it. So this is over and above the Planning Commission's estate restrictions or anything. It's an agreement we have with the owner of the property, the surface owner, who also stands to benefit if we find steam. He has a two percent overriding royalty, anybody that owns that property. These people would participate in that if we find it. So there was some inducement to an owner there, of course, to get in and own that property from that viewpoint also.

FUKE: Mr. Chairman. Mr. Craddick, who owns that land right now?

CRADDICK: As far as I understand, J.T. Trading -.

FUKE: Okay, J.T. Trading owns the land?

CRADDICK: It's being sold under an agreement of sale to the tenants in common.

FUKE: Okay, a portion, okay, the -.

CRADDICK: Part of this group is the Gadds.

FUKE: Back in 1980 the parcel was one; and at that point in time J.T. Trading had owned the entire parcel and he subsequently came in for a subdivision -?

CRADDICK: Yeah.

FUKE: And that subdivision was then approved?

CRADDICK: Yes.

FUKE: The special permit for exploratory activities also included a portion of the parcel that Mrs. Gadd has an interest in?

CRADDICK: Correct.

FUKE: Is that correct?

CRADDICK: Right. Now I don't know their arrangement, the Gadd's arrangement, with the other members, whether they participate in the settlement we made with the others. They represented themselves as the ones who were -.

FUKE: So Mrs. Gadd and several others have an agreement of sale from J.T. Trading -?

CRADDICK: Well, I don't know, the Gadds, now, this is something that they have to explain to you. From what I understand the other group planted the papaya and they were the ones that suffered the damage.

FUKE: Do you -?

CRADDICK: The Gadds were not included in that part -.

FUKE: Okay, do you have any surface interest on the property that the Gadds have an undivided interest in?

CRADDICK: Do we have any surface interest?

FUKE: Yeah.

CRADDICK: No, we don't. Just the agreement, just the agreement that allows us to enter on and that to carry out exploration and so forth.

FUKE: Was there a covenant or an easement or whatever that would have conveyed that understanding to subsequent property owners?

CRADDICK: Yes yes. When the property was sold by J.T., this was an encumbrance filed with the Bureau of Conveyances.

FUKE: That there would be geothermal exploratory -?

CRADDICK: Yes.

FUKE: Activities on the subject property?

CRADDICK: Right. That was filed. It's on file.

CHAIRMAN: Commissioner Martin.

A. MARTIN: Mr. Craddick, are you, have you been in any communication, any communication from the other members, other people who own the property?

CRADDICK: Yes.

A. MARTIN: Their feelings toward the extension of time?

CRADDICK: Yes, they've signed an agreement allowing us to enter and carry on our work in exchange for a monetary settlement that we made with them that compensates them for the damage we did to their papaya crop, their anticipated loss because it takes two years growth for papaya.

A. MARTIN: But as far as you know, they have not objected to the extension of the time?

CRADDICK: No, no. The, our agreement with them isn't limited by the time imposed on us by the special use permit. Our agreement goes beyond that. It's a long-term agreement, ten years, or something like that.

G. MARTIN: Mr. Chairman, I'd like to ask a question. Is that long-term agreement a private agreement?

CRADDICK: Yes, just like a oil lease, similar.

G. MARTIN: And now Mrs. Gadds signed that agreement, too?

CRADDICK: No. When they bought the property, this was an agreement that was to be passed, inherited by, anyone who bought the property would have to buy it with the understanding that this was an encumbrance on the title.

G. MARTIN: In other words, there was a stipulation that you purchase that property -?

CRADDICK: Yes.

G. MARTIN: These were the conditions you would purchase it under, right?

CRADDICK: Yes.

G. MARTIN: And everybody knew that?

CRADDICK: Yes.

G. MARTIN: How many people we're making reference to, how many residences?

CRADDICK: Six.

G. MARTIN: Six residences, people?

CRADDICK: No, not residences.

G. MARTIN: Six homeowners?

CRADDICK: They're mainland people.

G. MARTIN: Oh, mainland people?

CRADDICK: From California, yeah.

G. MARTIN: United States?

CRADDICK: Yeah. The Gadds are the only local people here.

CHAIRMAN: Any further questions? If not, thank you.

STOUT: I come forward again just to state for the record that the stipulations that you've made in this permit have no enforcement over those through the Health Department or for the protection of people, health and safety. You have no means of protecting those things. And I noticed it was read in the record that the letter from the Chamber of Commerce, and just to get out the facts, as Mr. Martin suggested, could I ask a question of the Board? How many people on the Board have ever been or are now members of Chambers of Commerce, JC's or involved in real estate? Both these things bear on this since it is a development thing. No one on the Board?

A. MARTIN: I would like to state for the record that I'm not a member of any of them.

STOUT: Okay, okay.

G. MARTIN: Or a church?

STOUT: Okay, well, my main thing here is just to state that there's no protection, you have no enforcement of any of these things you set down concerned with health and safety of the people there. Okay, and I hope each of you will stand personally behind your decision if they screw up. You know, if they screw up, I'd like to come back and ask each of you to stand behind your decision today. Okay, thanks.

THOMPSON: I hope that wasn't a threat.

STOUT: No, no. I just wanted to find out, I think there should be personal responsibility. See, when I ran an appliance store, I refused to sell microwave ovens because even though they met the safety standards, they didn't meet safety standards for almost every other country in the world. The American safety standards are very, you know, lax when it comes to microwave exposure. So I refused to sell them because even though the danger is minor, I figured, you know, I don't want to be responsible for something that happens down the line. You have to take personal responsibility. This is the day that corporations come in. When corporations come in, they do things and then no one is responsible. When something goes wrong, it's no one's fault. There's no one in the corporation who will take the responsibility. No one will take personal responsibility for what they do. So I don't really expect you to do that. I would just like to be able to come back to a meeting like this if they screw up and ask each of you to stand behind your decision today. That's not a threat. That's just asking for personal responsibility, taking responsibility for decision making.

THOMPSON: I think when I took this job -.

STOUT: Okay.

THOMPSON: I took it with my own -.

STOUT: All right, all right. In the past, okay, in the past down there when we were told we would create no nuisances to the surrounding community, neither noise or odor as was stated in the special permit, we went back to Mr. Fuke, back to the people involved, they denied responsibility. If you make the decision today, I just want to be able to come back when or if they screw up and be able to come back and say you stand behind your decision, you stand behind your decision. That's all. It's not a threat of any kind.

FUKE: Mr. Stout, Mr. Stout?

STOUT: Yes.

FUKE: I'd just like to point out for the record that there was never any representation on our part that there would never be any nuisance. We recognized that there were going to be nuisance; and it was our intent to structure conditions that would attempt to mitigate nuisances, not eliminate.

STOUT: Wasn't there a sentence in there that said will, oh, you said will mitigate any nuisances to surrounding community, noise or odor? I thought it said it will not create any nuisances to the surrounding community, neither noise nor odor.

FUKE: Again, what you're referring to is a suit that Puna Speaks lodged against the County.

STOUT: No, no, no law suit. This was based on the County wording.

FUKE: Well, what you're referring to is wording that is applicable to the HGP-A special permit conditions which now Judge Fong has to rule; and there was, as the Corporation Counsel's office pointed out, there are two sides to that issue.

STOUT: Okay, now on this permit, will you stand behind this one, too?

FUKE: The staff took a position, it's a recommendation, we stand by our recommendation.

STOUT: Okay.

G. MARTIN: Mr. Chairman, I just want to -.

CHAIRMAN: Commissioner Martin.

G. MARTIN: Ask a question. Are you saying that in your opinion this Commission won't stand behind their commitment?

STOUT: I have never seen the enforcement of these statutes by my obser, special things on the permit by this Commission. I have never seen enforcement of the, against the developer. Okay, I'm saying I haven't seen enforcement at all; and I don't think you have the means at your disposal to do the enforcement of the health and safety parts of this permit.

G. MARTIN: Well, this Commission is not a police agency. We do not do the policing. This is -.

STOUT: But.

G. MARTIN: Just one second, let me finish. This is an agency, a Commission that makes policy, okay. We have other staff people to enforce it. You have a responsibility to, as a member of this community, if you think or you feel that something is wrong, you have evidence -.

STOUT: I'm fulfilling that responsibility by being -.

G. MARTIN: That's contrary to the conditions laid out here, then it's your responsibility to notify us right now.

STOUT: Fine, do I notify each of you individually?

G. MARTIN: With our staff, you go through. You go to the Director of Planning.

STOUT: We have before. Okay, there's never been enforcement when we go through the staff. There's never enforcement as we go through the Health Department. Why make these stipulations if there's no enforcement? Isn't that a waste of effort on your part -?

G. MARTIN: You -.

STOUT: To make these stipulations on permit when you can't enforce it in the first place? If you have no means of enforcement, why make them? They're useless. This is like a front. This is a false thing that's set up to protect the people when there's nothing behind it.

G. MARTIN: That's your opinion. This is a new set of rules here. I think -.

STOUT: How will you enforce the air quality and noise standards?

G. MARTIN: We have our staff with other agencies to do that.

STOUT: Your staff won't process usually the complaint.

G. MARTIN: Well, I'm not sure that's exactly true.

STOUT: Okay, if we make -.

CHAIRMAN: Okay, gentlemen, I think we can go on and on. But is there anyone else who would like to testify? If not, Commissioners, you can either continue or close the public hearing.

A. MARTIN: Mr. Chairman, I move we close the public hearing.

CHAIRMAN: Is there a second?

HIRANO: Second.

CHAIRMAN: It was moved and seconded that the public hearing be closed. All those in favor signify by saying aye?

COMMISSIONERS: Aye.

CHAIRMAN: Oppose? Public hearing is closed.

On the amendment to Special Permit No. 471, it was moved by Commissioner A. Martin and seconded by Commissioner Kagawa that the request be approved for the reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

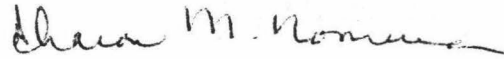
On the amendment to Special Permit No. 364, it was moved by Commissioner A. Martin and seconded by Commissioner Thompson to send a favorable recommendation to the State Land Use Commission for the reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

On the amendment to Special Permit No. 460, it was moved by Commissioner A. Martin and seconded by Commissioner Hirano to send a favorable recommendation to the State Land Use Commission for the

reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

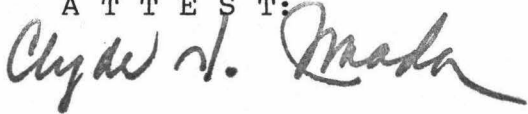
The public hearing adjourned at 4:11 p.m.

Respectfully submitted,



Sharon M. Nomura
Secretary

A T T E S T:



Clyde Imada
Chairman, Planning Commission

PLANNING COMMISSION

Planning Department
County of Hawaii

MINUTES
November 22, 1983

The Planning Commission met in regular session at 10:40 a.m. in the Hilo Armory, Hawaii Redevelopment Agency's Conference Room, South Hilo, Hawaii, with Chairman Clyde Imada presiding:

PRESENT: Clyde Imada	ABSENT: Clarence Mills
Thomas Hirano	George Ponte
Roy Kagawa (Arrived at 1:00 p.m.)	
Barbara Koi	
Arthur Martin	
George Martin	
Donald Thompson	

Sidney M. Fuke, Planning Director
Keith Kato, Staff Planner
Brian Nishimura, Staff Planner

R. Ben Tsukazaki, Deputy Corporation Counsel

and approximately 3 people at 10:40 a.m., 9 people at 1:00 p.m., 24 people at 1:36 p.m., and 24 people at 3:15 p.m. were in attendance

All those testifying were duly sworn in.

At 10:40 a.m., the Commission took up the Unfinished Business scheduled for 10:30 a.m.

CHANGE OF ZONE	Action on the application of Y-O Limited
<u>Y-O LIMITED</u>	Partnership for a change of zone for 409.8+
<u>PARTNERSHIP</u>	acres of land from Unplanned (U) to Single
KOHANAIIKI AND	Family Residential - 7,500 (RS-7.5), 10,000
KALOKO,	(RS-10), and 15,000 square foot (RS-15);
NORTH KONA	Multiple Residential - 3,000 square foot
	(RM-3); Village Commercial - 7,500 square foot
	(CV-7.5); and Open (O) zoned districts. The property abuts the Kona
	Heavens Subdivision and is situated approximately 3,000 feet makai
	of the Hawaii Belt Highway - Hina-Lani Street intersection,
	Kohanaiki and Kaloko, North Kona, TMK: 7-3-9:19.

The petitioner's representative, Raymond Suefuji, stated that he has read the revised conditions. In response to Commissioner A. Martin's inquiry Mr. Suefuji indicated that there is a view from each lot, but not of the same value.

It was moved by Commissioner Thompson and seconded by Commissioner Hirano that a favorable recommendation be sent to the County Council for the reasons and with the revised conditions dated November 8, 1983, (transmitted to the Commissioners by memorandum dated November 9th) as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

Mr. Stout noted that just an hour before this meeting, Bob Max of the Health Department on this island told him that they do not have the equipment nor funds to purchase the equipment to cross-check these developers.

Commissioner G. Martin said he felt the staff and other agencies should be able to enforce the air quality and noise standards.

It was then moved by Commissioner A. Martin and seconded by Commissioner Thompson that the public hearing be closed. Motion was unanimously carried.

It was moved by Commissioner A. Martin and seconded by Commissioner Thompson that the application for Thermal Power/Dillingham Corporation for a 3-year time extension be approved for the reasons and with the conditions as outlined by staff. A roll call vote was taken and motion carried unanimously with seven ayes.

At 3:15 p.m., the Commission took up the public hearings scheduled for 2:00 p.m.

Upon the staff's request, the Commission consolidated the hearings on the following three applications:

<u>AMENDMENT TO</u> <u>SP NO. 471</u> <u>BARNWELL GEOTHERMAL</u> <u>CORPORATION</u> KEAHIALAKA, PUNA	Public hearing on the application of Barnwell Geothermal Corporation to amend conditions relating to time performance of Special Permit No. 471. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program. The property involved is located along the south side of Pohoiki Road and about 1,500 feet from the HGP-A well, at its nearest point, adjacent to and on the makai side of Leilani Estates and Lanipuna Gardens Subdivisions, Keahialaka, Puna, TMK: 1-3-8:Portions of 6, 19, 23-32.
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<u>AMENDMENT TO</u> <u>GEOTHERMAL</u> <u>EXPLORATION AND</u> <u>DEVELOPMENT</u> <u>CORPORATION</u> OPIHIKAO, PUNA	Public hearing on the application of Geothermal Exploration and Development Corporation to amend conditions relating to time and performance of Special Permit No. 364. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program. The property involved is located on the northwestern or Pahoa side of Opihikao Road, approximately 2.5 miles from the junction of Opihikao Road and the Pahoa-Kalapana Road, Opihikao, Puna, TMK: 1-3-01:Portion of 24 and 25.
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<u>AMENDMENT TO</u> <u>GEOTHERMAL</u> <u>EXPLORATION AND</u> <u>DEVELOPMENT</u> <u>CORPORATION</u> LAEPAAO, PUNA	Public hearing on the application of Geothermal Exploration and Development Corporation to amend conditions relating to time and performance of Special Permit No. 460. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program. The property involved is located approximately 2,000 feet north of Pohoiki Road and about 1 mile northeast of the existing Hawaii Geothermal Project (HGP-A) site, Laepaoo, Puna, TMK: 1-4-02:10.
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Staff oriented the Commission and public of the subject and surrounding properties, and presented consolidated background and recommendations for approval with conditions, on file.

Upon the Commission's inquiry, staff added to its conditions a requirement that the biennial reports be submitted by January 1st and July 1st of each year and noted for the record the Hawaii Island Chamber of Commerce's letter in support of the requests, on file.

The petitioner's representative, Ed Craddick, stated they would be able to comply with all of the proposed conditions.

Under public testimony, Cheryl Gadd, Vice-President of Blake-Gadd Real Estate Incorporated who owns a portion of tax map key 1-3-8:19, expressed her concerns for the safety of the residents who live in the area and the pollution factors to both the air and water catchment tanks which are used for drinking water. One of her questions was the authority of Barnwell to drill on their property, to which Mr. Craddick responded by saying that they had lease agreements which were recorded with the deed.

Dennis Stout, member of the public, expressed his concern that there is no enforcement of any of the conditions proposed for the health and safety of the people in the area. He said he hoped each of the Commissioners will stand personally behind their decision if something should ever go wrong.

It was moved by Commissioner A. Martin and seconded by Commissioner Hirano that the public hearing be closed. Motion was unanimously carried.

On the amendment to Special Permit No. 471, it was moved by Commissioner A. Martin and seconded by Commissioner Kagawa that the request be approved for the reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

On the amendment to Special Permit No. 364, it was moved by Commissioner A. Martin and seconded by Commissioner Thompson to send a favorable recommendation to the State Land Use Commission for the reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

On the amendment to Special Permit No. 460, it was moved by Commissioner A. Martin and seconded by Commissioner Hirano to send a favorable recommendation to the State Land Use Commission for the reasons and with the conditions as outlined by the staff. A roll call vote was taken and motion carried unanimously with seven ayes.

At 4:11 p.m., the Commission simultaneously took up the following street names under New Business.

STREET NAMES
KURTISTOWN
HOUSELOTS
SUBDIVISION
KURTISTOWN,
PUNA

Approval of street names for roadways within the Kurtistown Houselots Subdivision, Olaa Homestead Reservation Lots, Kurtistown, Puna, Hawaii, TMK: 1-7-01, 02 & 07, as follows:

Hale Kula Road	- Schoolhouse
Hale Pule Loop	- Prayer house or church

STREET NAMES
KEAUHOU UKA
SUBDIVISION
KAPALAALAEA 2ND,
NORTH KONA

Approval of street names for roadways within the Keauhou Uka Subdivision, Unit II, Kapalaalaea 2nd, North Kona, Hawaii, TMK: 7-7-07:2, as follows:

Nohealani Street	- Heavenly beauty
Nohealani Place	- Heavenly beauty

STREET NAME
KAPIKOOKALANI
SUBDIVISION
SOUTH HILO,
HAWAII

Approval of street name for roadway within the Kapikookalani Subdivision, Ponahawai, South Hilo, Hawaii, TMK: 2-5-32 & 34, as follows:

Hele Mauna	- Mountain climber
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It was moved by Commissioner A. Martin and seconded by Commissioner Hirano to send a favorable recommendation to the County Council on the above street names. Motion was unanimously carried.

MINUTES

It was moved by Commissioner Kagawa and seconded by Commissioner Thompson that the minutes of November 3, 1983, be approved as circulated. Motion was carried unanimously.

ANNOUNCEMENTS

Director Fuke announced that the next scheduled meetings are December 21 and 22, 1983.

ADJOURNMENT

There being no further business, the Chair declared the meeting adjourned at 4:15 p.m.

Respectfully submitted,

Sharon M. Nomura

Sharon M. Nomura
Secretary

Irma Sumera

Irma Sumera
Secretary Pro Tem

A T T E S T:

Clyde H. Imada

Clyde Imada
Chairman, Planning Commission

November 25, 1983

Mr. Richard N. West, President
Hawaii Island Chamber of Commerce
180 Kinooole Street, Suite 203
Hilo, Hawaii 96720

Dear Mr. West:

Time Extension
Special Permit Nos. 354, 460, 468 & 471
Geothermal Exploration Permits

This is to acknowledge receipt of your letter dated November 22, 1983, expressing your support of the above-described requests.

Please be advised that your letter has been made a part of the official record of these requests.

Special Permit Nos. 471 and 468 were granted a time extension by the Planning Commission. However, Special Permit Nos. 354 and 460 requires the approval of the State Land Use Commission for final action.

Should you have any questions regarding this matter, please do not hesitate to contact this office.

Sincerely,

Sidney Fuke

SIDNEY FUKU
Planning Director

BN:lgv

EXHIBIT I NOV 28 1983



Hawaii Island

Chamber of Commerce

Established in 1897 • 180 Kimoole St., Suite 203 • Hilo, Hawaii 96720 • Phone (808) 935-7178

November 22, 1983

Chairman and Members
Planning Commission
County of Hawaii
Hilo, Hawaii 96720

Gentlemen:

The Hawaii Island Chamber of Commerce has long been a proponent of geothermal development on the Island of Hawaii, as a means of further economic development, a less expensive source of energy and, hopefully, additional jobs for our citizens.

We understand that at your meeting today, November 22, 1983, you will be considering extension of previously issued geothermal drilling permits to Thermal Power Company and, or Barnwell Industries.

Please be advised that the Hawaii Island Chamber of Commerce supports the extension of the drilling permits and urges approval by your commission.

Thank you for your consideration.

Sincerely yours,

RICHARD N. WEST
President

RNW:kms

cc: Sidney Fuke, Planning Director

RECORD OF VOTING
PLANNING COMMISSION
County of Hawaii

Date November 22, 1983

Petitioner Geothermal Exploration and Development Corporation TMK: 1-4-02:10 SD 364

Public hearing

Action

ACTION: C Approve

Deny

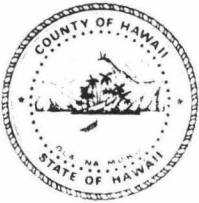
Defer

Continue

Other:

Commissioners	Aye	No	Excused	Abstain
MILLS, CLARENCE	-			
IMADA, CLYDE (CHRM.)	✓			
KAGAWA, ROY (VICE-CHRM.) ²⁷	✓			
KOI, BARBARA ANN	✓			
PONTE, GEORGE				
THOMPSON, DONALD	✓			
HIRANO, THOMAS	✓			
MARTIN, ARTHUR M	✓			
MARTIN, GEORGE	✓			

EXHIBIT H



DEPARTMENT OF RESEARCH AND DEVELOPMENT

COUNTY OF HAWAII • 34 RAINBOW DRIVE • HILO, HAWAII 96720 • TELEPHONE (808) 961-8366

November 22, 1983

Planning Commission
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

The County of Hawaii Department of Research and Development wishes to go on record supporting the extension of the permits for geothermal drilling for Geothermal Exploration and Development Corporation and Barnwell Geothermal Corporation.

Our support for the permit extensions is based on several reasons. First, the Big Island's population continues to grow and with population growth, the demand for energy increases so that new and clean sources of energy should be welcomed to meet the demand.

Second, we are very dependent upon imported oil to fulfill energy needs. We do not produce any oil so external sources are our only supply. In the event of a cutoff such as the 1973-74 embargo, or even the smaller 5% cut in 1975, the island is greatly handicapped. The phasing out of Puna Sugar and the cutback in cane acreage at HCPC will decrease bagasse production making this island further dependent upon oil.

Finally, the abundance of oil has led everyone to become complacent and to forget how tenuous the situation really is. We should bear in mind that the U. S. has very little control over most of the world's oil production; the Big Island has none. It only takes one power-happy individual to change the present oil abundance to and oil shortage.

For the foregoing reasons, we ask that the permit be extended and that geothermal exploration be allowed as designated by the permits.

H. Stuart Kearns, Jr.
H. STUART KEARNS, JR.
DIRECTOR

CONSOLIDATED BACKGROUND: BARNWELL GEOTHERMAL CORP.

AMENDMENT TO CONDITIONS

SPECIAL PERMITS: SP77-265 (LUC-364), SP80-347 (LUC-460) and Special Permit No. 471

The petitioner, Barnwell Geothermal Corporation, is requesting amendments to three Special Permits which allows the drilling and evaluation of exploratory geothermal wells in the Puna District.

A brief description of each of the permits is provided below:

1. Opihikao/Ashida Prospect

Tax Map Key: 1-3-1: Portions of 24 and 25

Special Use Permit No. 77-265 (LUC-64)

Permit Issued: 7/14/77 by the State Land Use Commission

Previous Amendments: 3

Present Termination Date: 7/14/84

Number of Wells Permitted: 6

Number of Wells Drilled: 1

Total Acreage: 118.180 acres

2. Daiichi Prospect

Tax Map Key: 1-4-2: 10

Special Use Permit No. 80-347 (LUC-60)

Permit Issued: 2/13/81 by the Land Use Commission

Previous Amendments: 2

Present Termination Date: 2/10/84

Number of Well Permitted: 3 successful, 9 maximum
Number of Wells Drilled: none
Total Acreage: 180.475 acres

3. Lanipuna Prospect

Tax Map Key: 1-3-8: portions of 6, 19, 23-32
Special Use Permit No. 471
Permit Issued: 12/16/80 by the Planning Commission
Previous Amendments: 1
Present Termination Date: 12/16/83
Number of Wells Permitted: 6
Number of Wells Drilled: 2
Total Acreage: 12 acres (two acres per well site)

In a letter dated July 19, 1983, the petitioner explained the need for a consolidated exploratory drilling program. The petitioner stated, in part, that:

"We have only drilled four (4) geothermal wells in the last forty (40) months, two for us and two for Thermal Power Company, using our drilling rig. Most of the wells need reworking, perhaps as much as two months each. This means, the Exploratory Program 1980-83 will yield at best one or two successfully completed exploratory geothermal wells.

"We must also assume that our rig will be needed by Thermal Power Company (Puna Ventures) for at least one and possibly two more wells in the next year or two.

"Assuming that some of the past construction problems are solved, we would expect to improve the past average rate of one well per year to two wells per year. This translates to a time requirement of at least four (4) years to accomplish a minimum program of 7 wells.

"We, therefore, request that all existing permits be lumped together and extended for a period of four (4) years from present termination dates, without specifying any order of work. We would be agreeable to stipulating that the permit terminates as soon as 7 successful wells (i.e. tested a minimum of 3 megawatts each) of the 19 remaining drilling sites presently permitted are drilled and tested. It is absolutely necessary to keep the drilling program flexible, as the location of each successive well drilled will depend upon the information obtained from prior wells. Therefore, any attempt to force a schedule unnecessarily restricts a meaningful and economical development of geothermal information.

"The likelihood of S.B. 903 (now signed by the Governor) not being fully implemented for two years makes it even more imperative that current Special Use Permits remain active and workable to insure an ongoing geothermal program. We would regard any lengthy lapse (of six months or more) in the continuity of the present geothermal activity as seriously jeopardizing the future of geothermal power in Hawaii.

"We, therefore, urge you to seriously consider the necessity for leniency in time restrictions, and adjust future needs on the basis of actual past experience, recognizing that

it is in the public interest to keep our geothermal effort alive in Hawaii."

In a subsequent letter dated September 28, 1983, the petitioner further described their exploratory program as follows:

"It is not yet possible to indicate 'the most promising area' as this must depend upon the results of drilling and testing programs. The best indications are provided by findings of other drilling programs such as Puna Ventures and HGP-A, and their possible geothermal inter-relation with our wells.

"At present our efforts are therefore concentrated in the Lanipuna and Daiichi area, and wells being planned are in effect step-out wells from the HGP-A location.

"The immediate plan is to drill on Lanipuna Well Site No. 6, however, commencement has been delayed pending the Attorney General's opinion on Act 296.

"We would then plan to drill an offset well at Daiichi Well Site No. 1, and then continue a series of offset wells to both Lanipuna No. 6 and Daiichi No. 1 to attempt to define the perimeter of the reservoir as it relates to our prospects.

"If and when such efforts appears unsuccessful in that area, we would plan further drilling at Opihikao.

"It is also possible that after drilling four or five successful wells in the Lanipuna and Daiichi area, that we would then move to prove out the Opihikao area. This future decision would depend upon findings up to that time, as well as the

market and the necessity of moving quickly into a development program to meet such market demand.

"Flexibility is therefore a key ingredient in conducting an exploratory program with an optimum of economy.

"Our anticipated development plans must await the outcome of our exploratory program and would entirely depend upon a cost effective commercialization of such findings.

"It is our hope that we could develop from our present prospect a minimum of 25 megawatts within five to seven years, with a potential for at least 100 megawatts within fifteen years. This could represent a significant inflow of cash to the Big Island, on the average of \$5,000,000 to \$10,000,000 per year for wells and plants construction during the development stage."

A series of correspondences between the Planning Department and the petitioner continued for several months. The end result was the petitioner's decision to seek simultaneous amendments to each of the permits. As part of this request, the petitioner suggested the following uniform set of conditions that would meet their objectives:

1. "That prior to commencement of any operation, the petitioners or their authorized representative(s) shall comply with the requirements of Regulation 8 of the State Department of Land and Natural Resources relative to drilling for geothermal resources in Hawaii.
2. "That the petitioners/representative(s) shall secure a building permit for all structures which are to be constructed on the subject property.

3. "That prior to commencement of any drilling activity, the petitioners/representative(s) shall submit plans to the Planning Department showing the location and providing a metes and bounds description of the well site(s) to be drilled.
4. "That the petitioners will demonstrate diligence by commencing at least one new exploratory well each year either under this permit or under other such permits held by petitioner.
5. "That the length of this Special Permit shall be for a period not to exceed four (4) years from the effective date of the Special Permit, but to terminate upon the successful completion of three (3) exploratory wells. Successful being defined as having been field tested at a proven capacity of 3 megawatts each.
6. "That the rules, regulations and requirements of the State Department of Health shall be complied with.
7. "That the petitioners/representative(s) shall be responsible to assure that every precaution is taken to reduce any nuisances, whether it be noise or fumes, which may affect the residents and properties in the immediate area. Should it be determined that these precautionary measures are not being applied, the Planning Department is authorized to cease any further activity in the area.
8. "That upon termination of the operation or if the petitioners determine that the project is not feasible, all

- structures erected shall be dismantled and removed from the site(s).
9. "That sound barriers shall be erected to abate noise generated during the drilling and testing of the proposed wells.
 10. "That drilling be permitted seven (7) days per week, 24 hours/day, providing that Condition 9 above is adhered to.
 11. "That an archaeological reconnaissance survey shall be conducted of the proposed well site(s) prior to drilling. Such a report shall be submitted at the time that plans for the well sites are submitted to the Planning department for review.
 12. "That the petitioner shall submit a status report to the Planning Director on a biannual basis, or, within thirty (30) days of the completion of any exploratory well, whichever occurs sooner. The expected biannual reports shall be due January 1st and July 1st of each year. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including a drilling activity report;
 - b. A description of the work being proposed over the next reporting period;
 - c. The results of the environmental/noise monitoring activities;
 - d. A log of the complaints received and the responses thereto;

- e. The current status of exploration activities in the context of long-range development goals; and
- f. Any other information that the Planning Director may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.

If requested by the petitioner, any proprietary information will be kept confidential within the time frame as may be agreed to.

- 13. "That all other applicable rules and regulations shall be complied with.
- 14. "That the petitioner, Barnwell Geothermal Corporation, shall be responsible for complying with the stated conditions of approval. This permit shall be non-transferable and non-compliance with this condition shall result in the automatic nullification of the permit.
- 15. "That the petitioner provide a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drillsite, 24 hours a day, to respond to any local complaints for the duration of the drilling activity.
- 16. "That the petitioner conduct a noise monitoring program throughout the drilling operation. The petitioner shall submit the noise monitoring data to the Planning Department upon termination of the drilling operation or, at any time during drilling activity, upon the request of the Planning Director."

It should be noted that the only new conditions being proposed by the petitioner are numbers 4 and 5. All of the other conditions listed above are in effect at this time.

Finally, GeothermEx, Inc., a firm retained by the petitioner to assess the geothermal energy potential of the Barnwell leaseholds in the Puna District, submitted, in part, the following statement dated November 9, 1983:

(Read portions of GeothermEx statement dated 11/9/83)

CONSOLIDATED FINDINGS: BARNWELL GEOTHERMAL CORP.

AMENDMENT TO CONDITIONS

SPECIAL PERMITS: SP77-265 (LUC-364), SP80-347 (LUC-460) and Special Permit No. 471

Upon careful review of the subject request staff is recommending that it be approved based on the following findings:

The approval of the time extension request will not be contrary to the purpose and intent of the time condition. The purpose of stipulating time conditions is to assure that any proposed development come to fruition in a timely manner. In this particular case, the Special Permits have been granted to allow the drilling of exploratory geothermal wells for the purpose of assessing geothermal potential for the area. During the initial lifespan of the permits the petitioner has completed the drilling of three wells. These wells have not encountered sufficient permeability to be useful for flow tests. Furthermore, the drilling program encountered previously unexpected field conditions relating to extremely high temperatures which required modifications to casing materials and cementing procedues. The information obtained from the initial drilling activity required more time to analyze and modifications to subsequent drilling programs which were not anticipated during the original planning for the permits. Consequently, a revised drilling program has been developed which requires additional time to collect and evaluate technical

information to adequately determine the extent and capacity of the geothermal reservoir in the area..

The work which has been completed to date represents a significant investment and clear commitment to conduct the activities allowed by the Special Permit.

Approval of the four-year time extension will provide sufficient time for the petitioner to complete the exploration program in a safe and efficient manner. Furthermore, approval of the subject request will not alter the reasons for which the permit was originally approved nor increase any of the expected impacts of the project.

The County of Hawaii has long been a supporter of geothermal development. Policies contained in the General Plan support this commitment. Actions such as the approval of several geothermal exploration programs through the Special Permit process and partial funding of the HGP-A program reflect the County's support and interest in geothermal development.

At the same time, we are supportive of the orderly growth and development of this island. We are thus mindful of the need to assure that a development works for and not against the County. Care must therefore be taken to balance the social, economic, and environmental impacts of any development.

There are certain land use activities that have been with us for a good number of years. These include housing, resort development, agriculture and recreation. Having been with us for decades, regulations have evolved and are already in place. Yet, as problems and/or different issues emerge, these

regulations are amended or new ones are created to more accurately achieve the appropriate social, economic, and environmental balance.

Geothermal development, while already practiced elsewhere, is relatively new here. Our knowledge and experience with geothermal development is understandably rather limited; but has increased tremendously since the first exploration permit was issued six years ago and will continue to grow and expand as geothermal activities move forward. Its infancy, to some extent, partially accounts for the absence of clear cut regulations and standards to guide its development while taking care of its "externalities" or off-site problems.

We believe that geothermal development in the State at this stage is faced with a dilemma. On one hand, we have a policy desire and spirit to engage in a new field (geothermal); and on the other, its infancy contributes to the absence of comprehensive regulations. The regulations will invariably help shape and direct geothermal development; similarly, as geothermal activities occur, regulations will be shaped and re-shaped.

It is within this framework that we are supportive of the petitioner's proposal. In the absence of comprehensive regulations governing geothermal development, we believe that a mutual spirit of give and take must be established to guide the continued efforts of exploratory drilling programs. As such, while we recommend approval of the request to extend the life of the permits and to grant additional flexibility in the drilling

program, we are also taking this opportunity to recommend that additional conditions be imposed to reflect the increased body of knowledge which has been acquired since the existing conditions were adopted. It should be further noted that the number of wells allowed by each of the permits will remain the same.

Based on the foregoing we are recommending that all of the permits be issued under the name of Barnwell Geothermal Corporation and that the following set of conditions be adopted for all three permits, replacing those which are now in effect:

1. The petitioners, its successors or assigns shall be responsible for complying with all of the stated conditions of approval.
2. Prior to the commencement of any grubbing or grading activity, the petitioner shall:
 - a. Provide a metes and bounds description of the well site(s) and access road right-of-way(s) to the Planning Department;
 - b. Mark the boundaries of the designated well site(s), and the access road right-of-way(s), and no construction or transportation equipment shall be permitted beyond the prescribed boundaries of the said well site(s) and road right-of-way(s);

- c. Conduct an archaeological reconnaissance survey for the proposed well site(s) and access road right-of-way(s) and submit it to the County Planning Department for review; and
 - d. Comply with all requirements of the County grading ordinance.
3. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or its designee a noise monitoring plan to be implemented when the well drilling and testing period begins. This plan should allow the coordination of noise complaints with noise measurements, the meteorological conditions, and the type of operations which occurred at the well site. The data obtained shall be available upon request by the appropriate governmental agencies including the Planning Department. The noise monitoring program shall be in operation during all active phases of the project.
4. Prior to any drilling activity, the petitioner shall submit and secure approval from the Planning Department or designee an air quality monitoring plan to be implemented when the well drilling period begins. The plan shall include provisions for installation, calibration, maintenance and operation of recording instruments to measure air contaminant concentrations. The specific

elements to be monitored, the number of stations involved and the frequency of sampling and reporting shall be specified by the Planning Department or its designee. The air quality monitoring program shall be in operation during all phases of the project.

5. Prior to any drilling activity the petitioner shall submit and secure approval from the Hawaii County Civil Defense Agency a plan of action to deal with emergency situations which may threaten the health, safety and welfare of the employees/persons in the vicinity of the proposed project. The plan shall include procedures to facilitate coordination with appropriate State and County officials as well as the evacuation of affected individuals.
6. The petitioner shall maintain a record in a permanent form suitable for inspection and shall make such record available on request to the Planning Department or its designee. The record shall include:
 - a. Occurrence and duration of any start-up, shut-down and operation mode of any well/facility.
 - b. Performance testing, evaluation, calibration checks and adjustment and maintenance of the continuous emission monitor(s) that have been installed.
 - c. Emission measurements reported in units compatible with applicable standards/guidelines.

7. The petitioner, its successors or assigns shall apply the "Best Available Control Technology" (BACT) with respect to geothermal emissions during all phases of the project, including well drilling and testing. "Best available control technology" means the maximum degree of control for noise and air quality concerns taking into account what is known to be practical but not necessarily in use. BACT shall be determined by the Planning Department in consultation with other appropriate governmental agencies involved in the control or regulation of geothermal development. Compliance with applicable noise and air quality regulations or guidelines shall be deemed to meet the BACT requirement. Should it be determined that BACT is not being employed, the Planning Department is authorized to take any appropriate action including suspension of any further activities at the project site or referral of the matter to the Planning Commission for review and disposition.
8. Unabated open venting of geothermal steam shall be prohibited unless prior approval is received from the Planning Department or its designee. The Planning Department or its designee shall permit unabated open venting only when all other reasonable alternatives have been deemed to be unacceptable. Venting for all other situations shall be permitted only when accompanied by appropriate sound and chemical abatement techniques approved by the Planning Department or its designee.

9. The petitioner shall provide, install, calibrate, maintain and operate a meteorological station and conduct continuous meteorological monitoring at the site or at another location as may be mutually agreed to by the petitioner and the Planning Department. The data shall be provided in a format agreeable to the Planning Department on a monthly basis and shall include temperature, wind velocity, wind direction and other information deemed necessary by the Planning Department.
10. The petitioner shall publish a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drill site, 24 hours a day, to respond to any local complaints.
11. The petitioner shall submit a status report to the Planning Department on a biannual basis (by the first day of January and July of each year), or, within 30 days of the completion of any exploratory well. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including drilling activity report;
 - b. A description of the work being proposed over the next reporting period;

- c. The results of the environmental/noise monitoring activities;
- d. A log of the complaints received and the responses thereto;
- e. The current status of exploration activities in the context of long-range development goals; and
- f. Any other information that the Planning Department may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.

12. Until such time as noise regulations are adopted by the State or County, the petitioner shall comply with the following guidelines which shall be enforced by the Planning Department:

- a. A general noise level of 55 dba during daytime and 45 dba at night shall not be exceeded except as allowed under b and c. For the purposes of these guidelines, night is defined as the hours between 7:00 p.m. and 7:00 a.m.;
- b. The allowable noise levels may be exceeded by a maximum of 10 dba; however, in any event, the generally allowed noise level should not be exceeded more than 10% of the time within any 20 minute period;
- c. The noise level guidelines may be waived only for the specified duration of authorized open venting periods;

- d. The noise level guidelines shall be applied at the existing residential receptors which may be impacted by the geothermal operation; and
 - e. Sound level measurements shall be conducted using standard procedures with sound level meters using the "A" weighting and "slow" meter response unless otherwise stated.
13. A disposal site or sites, approved by the State Department of Health, shall be provided for sump contents and other waste materials to be disposed of from the drilling activity.
14. All sumps/ponds shall be purged in a manner meeting with the approval of the State Department of Health.
15. When wells are completed or abandoned, all denuded areas on and around the drilling site shall be revegetated in a manner meeting with the approval of the Planning Department.
16. The petitioner shall grant unrestricted access of the subject property(ies) to authorized governmental representatives or to consultants or contractors hired by governmental agencies for inspection, enforcement, or monitoring activities. A designated employee shall be available at all times for purposes of supplying information and responses deemed necessary by the authorized governmental representative in connection with such work.

17. The petitioner will drill at least one new exploratory well each year either under this permit or under other such permits held by the petitioner.
18. The petitioner shall comply with the requirements of Chapter 14, Acticle 9 of the Hawaii County Code, relating to outdoor lighting..
19. This special permit shall be effective until December 31, 1987, or upon the successful completion of 3 exploratory wells, whichever occurs sooner. Successful, for the purposes of this condition, is defined as having a field tested capacity of 3 megawatts each.
20. All other applicable rules, regulations and requirements, including those of the State Department of Health and the State Department of Land and Natural Resources shall be complied with.

Should any of the foregoing conditions not be met, the permit shall be automatically void.

BARNWELL GEOTHERMAL CORPORATION

November 15, 1983

Mr. Sidney M. Fuke, Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Fuke:

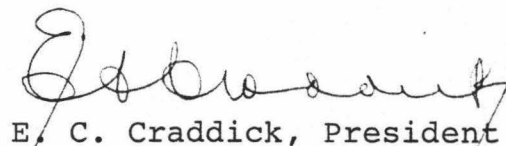
Amendment to Conditions
SP80-347 (LUC 460), SP77-265 (LUC 364) and SP80-8 (LUC 471)

Further to your letter of November 8, 1983, we wish to request that all Special Permits be transferred to Barnwell Geothermal Corporation.

We are also enclosing a statement from GeothermEx, Inc., which should be part of our application supporting documents.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION


E. C. Craddick, President

ECC/sm
Encl.

EXHIBIT D

GeothermEx, Inc.

SUITE 201
5221 CENTRAL AVENUE
RICHMOND, CALIFORNIA 94804

(415) 527-9876

CABLE ADDRESS GEOTHERMEX

TELEX 6831372 WRLD LWW 709152 STEAM UD

November 9, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street
Honolulu, Hawaii 96819

Subject: Barnwell Geothermal Corporation,
Hawaii Exploration Program

Dear Ed:

Please submit the statement following hereafter to the Hawaii Planning Commission at the hearing scheduled November 22, 1983 relative to Special Use Permits SP80-347(LUC460), SP77-265(LUC 364) and SP80-8(LUC 471).

STATEMENT OF GEOTHERMEX, INC.

Barnwell Geothermal Corporation ("Barnwell") has retained GeothermEx, Inc. ("GeothermEx") to assess the geothermal energy potential of the Barnwell leaseholds in the Puna District of Hawaii, and to provide technical support (geology, well testing, reservoir engineering) during the exploration and development of the leaseholds.

GeothermEx, Inc. is a group of earth scientists, engineers and power economists providing independent field services and consulting in geothermal as well as petroleum exploration and development in the United States and abroad. The company was founded in 1973, and includes senior professional staff members, plus junior technical staff, associated specialists and non-professional staff. Our clients include electric utilities, major and independent oil companies, small and major landowners,

GeothermEx, Inc.

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TELEX 68-31372 WRLD UW

Mr. Ed Craddick, November 9, 1983, Page 2.

agencies of federal, state and local governments, foreign governments, international agencies and banks (World Bank, IDB, ADB, Wells Fargo), research institutes, engineering companies, and major energy consumers looking for alternative energy sources.

GeothermEx has conducted more than 400 resource assessment projects for the purpose of geothermal development planning. Six areas are now producing commercial electric power (totaling about 940 MW), and pilot electrical power plants are in operation in some of the others. Many other areas are in the development stage. Other areas have been developed for non-electric, direct use of geothermal energy.

GeothermEx has worked in young volcanic terranes in the Azores Islands, Costa Rica, the Cascades of Oregon and California, the Rift Zone of East Africa (Kenya, Ethiopia, Djibouti and Mozambique), Japan, Indonesia and the Philippines, as well as Hawaii.

The senior staff members assigned to the Barnwell project in Hawaii are Dr. Murray C. Gardner, geologist, Dr. Subir K. Sanyal, reservoir engineer, Mr. John J. C. Bradbury, power economist, and Mr. Arch R. Campbell, geologist. Dr. Gardner has 23 years of experience in geothermal exploration and development. His experience includes work done in young volcanic areas since 1961. Dr. Sanyal has 14 years of experience in reservoir engineering. Mr. Campbell has been actively working in geothermal operations for 8 years; most of this has been in young volcanic areas. Mr. Bradbury has more than 40 years of experience in electric power management. He was in charge of facilities of the Bahamas Islands for 11 years.

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Mr. Ed Craddick, November 9, 1983, Page 3.

Successful drilling of well HGP-A has proven that a wet steam resource exists in the Puna District. Successful development at HGP-A has led to generation of about 3 megawatts of electric power. The total size of the reservoir, the amount of steam that can be produced and the economic value of the steam are still unknown. Operators have not been able to follow HGP-A by successfully drilling and testing additional wells for sufficiently long test periods to measure well deliverability declines and determine the extent and capacity of the reservoir.

Barnwell began exploration activities in Hawaii through its predecessor, Geothermal Exploration and Development Company (GEDCO) nearly 10 years ago. The principals of GEDCO have provided the drilling rig and team for all the deep exploratory wells drilled on Hawaii. The leaseholds of Barnwell are situated along the East Rift Zone of Kilauea. This is a very active, youthful part of the crust; eruptions and seismic events are frequent. A magmatic heat source clearly is present, but its precise position and effect on the hydrologic system are not well defined. Geophysical information in this area is only a guide to subsurface conditions. Complex subsurface geology and island hydrology cause ambiguity of the geophysical data. Accordingly, no drilling site may be assumed with complete confidence before drilling to have sufficient temperatures and permeabilities in the subsurface to make a commercial well.

Barnwell has drilled Lanipuna No. 1 and Lanipuna No. 1/ST (directional) and Ashida No. 1 wells on two of its leaseholds during 1980-1983. These wells have not encountered sufficient permeability to be useful for flow tests.

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TELEX 68-31372 WRLD UW

Mr. Ed Craddick, November 9, 1983, Page 4.

Thermal Power Company has drilled Kapoho State Nos. 1 and 2 on its leasehold. We are not privy to test results but apparently difficulties in construction of the wells have prevented complete testing and reservoir analyses. In any case data from the Kapoho wells could not be extrapolated across structural "grain" of the East Rift Zone of Hawaii to the Barnwell leases. A great deal has been learned, at great expense, about the special requirements for construction of wells in the high temperature reservoirs of the East Rift Zone of Hawaii. We anticipate that each new well drilled will add considerably to understanding and quantitative analysis of the geothermal resource.

Hence, we have recommended that Barnwell apply for approval of the program under consideration by the Planning Commission to carry forward the exploration of the geothermal resource of the Puna District. The program is cognizant of the fact that the Ashida and Lanipuna/Daichi prospects are separated by about 2 miles and cannot be considered as one unit. Even in The Geysers of California (a well-known steam field), wells drilled more than one mile from production areas are considered wildcats. Therefore, it should not be anticipated that every well will provide data applicable to all leases and operators.

An especially complex subsurface structural and hydrologic terrane occurs at the Barnwell leaseholds near the southern margin of the East Rift Zone. The northeasterly-trending principal features of the rift are probably dislocated by small transform structures, so that persistence of the main structures is not predictable. Some of the northeasterly-trending faults are active and intruded by very young hot magmatic material while others may be inactive, sealed or open but channels for percolating cold waters. The faults and subaerial and sub-oceanic

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Mr. Ed Craddick, November 9, 1983, Page 5.

eruptive flows are highly altered and mineralized by hydrothermal solutions. This causes permeability changes over small distances. A complex of volcanic dikes has been intruded into the rift fractures and many eruptive centers. The puus and craters further disrupt reservoir continuity. For these reasons, several holes will need to be completed in each of the prospects to evaluate production, reservoir limits and interference between wells. The size of a reservoir cannot be determined from a single well test unless the well is flowed long enough for a boundary effect to be felt. For a geothermal reservoir this could require an impractically long time.

The nature, persistence and production capacity of a geothermal reservoir will require completion of several wells which can be tested and simultaneously observed. HGP-A and/or the Kapoho wells may or may not be located close enough to successful Barnwell exploration wells to be useful even if data is shared. The requirement for several wells is regardless of the total development objective of a geothermal operator.

Therefore we support the Barnwell applications for extensions of time and modifications for the Special Use Permits. We think that a prudent program has been proposed by Barnwell which will allow for orderly and efficient development of geothermal energy. There needs to be sufficient time to collect and evaluate technical information from each well and to economically budget a drilling program. We are aware of the concerns of the appropriate agencies that the development to geothermal energy for Hawaii be expedited. We think that the Barnwell

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TELEX: 68-31372 WRLD UW

Mr. Ed Craddick, November 9, 1983, Page 6.

program reasonably approaches the solution of the problem of compatibility of expeditious work and great financial risk.

Sincerely,

A handwritten signature in dark ink, appearing to read "Murray C. Gardner", with a long horizontal flourish extending to the right.

Murray C. Gardner, Ph.D.
Executive Vice President

MCG/t

November 7, 1983

Mr. E. C. Craddock
Geothermal Exploration & Development Corp./
Barnwell Geothermal Corporation
2838 Paa Street, Suite 208E
Honolulu, HI 96819

Dear Mr. Craddock:

Notice of Public Hearings
Amendments to SP Nos. 364, 460, and 471
Tax Map Keys 1-3-01:Portion of 24 & 25; 1-4-02:10
and 1-3-0:6, 7, 19 & 1-3-0:Portion of 4

This is to inform you that your requests have been scheduled for public hearings. Said hearings among others will be held beginning at 2:00 p.m. on Tuesday, November 22, 1983, in the Hilo Armory, Hawaii Redevelopment Agency's Conference Room, 33 Hailuwa Drive, South Hilo, Hawaii.

The presence of a representative will be appreciated in order that all questions relative to the requests may be clarified.

A copy of the hearing notice and the agenda are attached for your information.

Sincerely,



Sidney M. Duke
Director

SRN

Attts.

EXHIBIT C

NOV 8 1983

PUBLIC HEARINGS
PLANNING COMMISSION
COUNTY OF HAWAII

NOTICE IS HEREBY GIVEN of public hearings to be held by the Planning Commission of the County of Hawaii in accordance with the provisions of Section 5-4.3 of the Charter of the County of Hawaii.

PLACE: Hilo Armory, Hawaii Redevelopment Agency's
Conference Room, 35 Wailuku Drive, South Hilo,
Hawaii

DATE: Tuesday, November 22, 1983

TIME: 1:00 p.m. (Item Nos. 1-2)
1:30 p.m. (Item No. 3)
2:00 p.m. (Item Nos. 4-6)

The purpose of the public hearings is to afford all interested persons a reasonable opportunity to be heard on the following requests:

1. PETITIONER: WILLIAM BRILHANTE (R83-28)
LOCATION: Site of the existing Brilhante-Hawaii Real Estate, Inc.'s office situated along the west side of Kilauea Avenue, Waiakea Houselots, 2nd Series, Waiakea, South Hilo.
TMK: 2-2-24:11
PURPOSE: Change of zone for 25,252 square feet of land from an Office Commercial - 20,000 square foot (CO-20) to a General Commercial - 20,000 square foot (CG-20) zoned district.
2. PETITIONER: WILLIAM BRILHANTE (R83-29)
LOCATION: Site of the former Yano Store at the western corner of the Kilauea Avenue-Lono Street

intersection, Waiakea Houselots, 2nd Series,
Waiakea, South Hilo.

TMK: 2-2-23:1

PURPOSE: Change of zone for 20,401 square feet of land
from an Office Commercial - 20,000 square foot
(CO-20) to a General Commercial - 20,000
square foot (CG-20) zoned district.

3. PETITIONER: THERMAL POWER COMPANY/DILLINGHAM CORPORATION

LOCATION: Approximately 1,800 feet east of the HGP-A
complex, Kapoho, Puna.

TMK: 1-4-01:Portions of 2 & 19

PURPOSE: Request for a 3-year time extension to
Condition No. 6 of Special Permit No. 468
which allowed the drilling and evaluation of
two exploratory geothermal wells. Condition
No. 6 restricted the length of the permit
until October 15, 1983.

4. PETITIONER: BARNWELL GEOTHERMAL CORPORATION

LOCATION: Along the south side of Pohoiki Road and about
1,500 feet from the HGP-A well, at its nearest
point, adjacent to and on the makai side of
Leilani Estates and Lanipuna Gardens
Subdivisions, Keahialaka, Puna.

TMK: 1-3-8:6, 7, 19 and 1-3-9:Portion of 7

PURPOSE: To amend conditions relating to time
performance of Special Permit No. 471. The
request is seeking more time to complete the

exploration program and more flexibility in conducting the drilling program.

5. PETITIONER: GEOTHERMAL EXPLORATION AND DEVELOPMENT CORPORATION

LOCATION: Northwestern or Pahoa side of Opihikao Road, approximately 2.5 miles from the junction of Opihikao Road and the Pahoa-Kalapana Road, Opihikao, Puna.

TMK: 1-3-01:Portion of 24 and 25

PURPOSE: To amend conditions relating to time and performance of Special Permit No. 364. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program.

6. PETITIONER: GEOTHERMAL EXPLORATION AND DEVELOPMENT CORPORATION

LOCATION: Approximately 2,000 feet north of Pohoiki Road and about 1 mile northeast of the existing Hawaii Geothermal Project (HGP-A) site, Laepaoo, Puna.

TMK: 1-4-02:10

PURPOSE: To amend conditions relating to time and performance of Special Permit No. 460. The request is seeking more time to complete the exploration program and more flexibility in conducting the drilling program.

Maps showing the general locations and boundaries of the areas under consideration and/or plans of the proposed developments are on

file in the office of the Planning Department in the County Building at 25 Aupuni Street, Hilo, Hawaii, and are open to inspection during office hours. All comments should be filed with the Planning Commission before that date, or in person at the public hearing.

PLANNING COMMISSION,
Clyde Imada, Chairman
By Sidney M. Fuke
Planning Director

(Hawaii Tribune Herald: November 11, 1983)

November 8, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

Dear Mr. Craddick:

Amendment to Conditions
Special Permits: SP80-347 (LUC-460) and SP77-265 (LUC-364) ✓

This is to acknowledge receipt of your request to amend conditions on the above-described Special Permits.

In your letter of October 31, 1983, you state that you are leaving SP77-265 and SP80-347 in the name of Geothermal Exploration and Development Corp., which is a subsidiary of Barnwell. Please be advised, however, that you may request that these permits be transferred to Barnwell Geothermal Corporation if you so desire. This could be incorporated along with the other amendments if you so notify us in writing.

Your request to keep the well drilling reports confidential will be honored as stipulated by the conditions in the above-described permits. Please be advised, however, that other information, particularly as they relate to public health and welfare concerns, may not be subject to the confidentiality requirements. Such determinations will be made on a case by case basis.

Please be further advised that the public hearing on the above-described request, as well as the previously filed amendment to SP80-8 (LUC-471), will be held on November 22nd. You will be notified of the time and place of the hearing under separate cover.

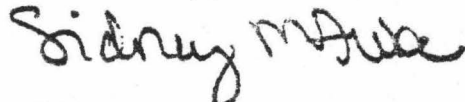
EXHIBIT B

NOV 9 1983

Mr. E. C. Cradick
Page 2
November 8, 1983

Should you have any questions regarding this matter, please contact Keith Kato or Brian Nishimura of this office.

Sincerely,

A handwritten signature in dark ink, appearing to read "Sidney Fuke". The signature is written in a cursive, slightly slanted style.

Sidney Fuke
PLANNING DIRECTOR

BN:lgy

BARNWELL GEOTHERMAL CORPORATION

October 31, 1983

Mr. Sidney M. Fuke, Director
Planning Department
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Special Use Permits
SP80-347 (LUC 460), SP77-265 (LUC 364), & SP80-8 (LUC 471)

Dear Mr. Fuke:

In response to your letter of October 20, 1983, we are submitting herewith separate formal applications for extension of time and modification of conditions for Special Use Permits SP77-265 (LUC 364) and SP80-347 (LUC 460), together with pertinent additional information relating to SP80-8 (LUC 471), which application was previously accepted by you.

A check for an additional \$200.00 filing fee is therefore enclosed, as requested.

As you will note from prior correspondence we are seeking more time to complete a meaningful exploration program, and more flexibility in our drilling program. All previous supporting statements remain applicable and inter-related to each of these separate permits, and may be used by you accordingly.

In addition to the foregoing, we are also suggesting a uniformity of conditions for all three (3) permits based upon actual field experience and up-dated Planning Department concerns. To accomplish this, we have compiled a set of applicable conditions from past and current permits and modified those (particularly Condition No. 4) as needed.

Locations of all wells will remain the same as previously submitted, and are in effect offsetting to one another being separated by approximately 1/4 mile. Site location maps are submitted for the purpose of clearly indicating the Lanipuna Well No. 6 and Daiichi Well No. 1 drilling sites as requested.

EXHIBIT A-1

Mr. Sidney M. Fuke, Director
Planning Department

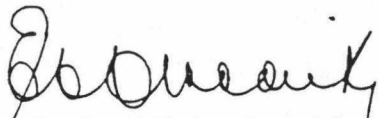
October 31, 1983
Page Two

To preserve the integrity of the existing permits we are leaving SP77-265 and SP80-347 in the name of Geothermal Exploration & Development Corp., which is a subsidiary of Barnwell.

We are also enclosing one copy each of reports of the previous work accomplished on Lanipuna Well No. 1 and Ashida Well No. 1 as requested, and ask that these be regarded as confidential.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION


E. C. Craddick, President

ECC/sm

Enclosures: Check for \$200.00
Drilling Reports on Lanipuna and Ashida (CONFIDENTIAL)
Individual Application with uniform conditions.
Location Map showing Lanipuna Well No. 6 Well Site
Location Map showing Daiichi Well No. 1 Well Site

cc: M. Kinzler - New York
S. Eisenstat - New York
M. Gardner - California

PERMIT: Opihikao/Ashida Prospect
SP77-265 (LUC 364)
Geothermal Exploration & Development Corp.
6 Wells

EFFECTIVE DATE: July 14, 1977

TERMINATION DATE: July 14, 1984

Requesting additional time to complete exploratory work for at least three (3) successful wells, and substitution of conditions with those outlined below, for the purpose of general uniformity of all Special Use Permits now held by the petitioner.

Conditions:

1. That prior to commencement of any operation, the petitioners or their authorized representative(s) shall comply with the requirements of Regulation 8 of the State Department of Land and Natural Resources relative to drilling for geothermal resources in Hawaii.
2. That the petitioners/representative(s) shall secure a building permit for all structures which are to be constructed on the subject property.
3. That prior to commencement of any drilling activity, the petitioners/representative(s) shall submit plans to the Planning Department showing the location and providing a metes and bounds description of the well site(s) to be drilled.
4. That the petitioners will demonstrate diligence by commencing at least one new exploratory well each year either under this permit or under other such permits held by petitioner.
5. That the length of this Special Permit shall be for a period not to exceed four (4) years from the effective date of the Special Permit, but to terminate upon the successful completion of three (3) exploratory wells. Successful being defined as having been field tested at a proven capacity of 3 megawatts each.
6. That the rules, regulations and requirements of the State Department of Health shall be complied with.
7. That the petitioners/representative(s) shall be responsible to assure that every precaution is taken to reduce any nuisances, whether it be noise or fumes, which may affect the residents and properties in the immediate area. Should it be determined that these precautionary measures are not being applied, the Planning Department is authorized to cease any further activity in the area.

8. That upon termination of the operation or if the petitioners determine that the project is not feasible, all structures erected shall be dismantled and removed from the site(s).
9. That sound barriers shall be erected to abate noise generated during the drilling and testing of the proposed wells.
10. That drilling be permitted seven (7) days per week, 24 hours/day, providing that Condition 9 above is adhered to.
11. That an archaeological reconnaissance survey shall be conducted of the proposed well site(s) prior to drilling. Such a report shall be submitted at the time that plans for the well sites are submitted to the Planning Department for review.
12. That the petitioner shall submit a status report to the Planning Director on a biannual basis, or, within thirty (30) days of the completion of any exploratory well, whichever occurs sooner. The expected biannual reports shall be due January 1st and July 1st of each year. The status report shall include, but not be limited to:
 - a. A detailed description of the work undertaken during the current reporting period including a drilling activity report;
 - b. A description of the work being proposed over the next reporting period;
 - c. The results of the environmental/noise monitoring activities;
 - d. A log of the complaints received and the responses thereto;
 - e. The current status of exploration activities in the context of long-range development goals; and
 - f. Any other information that the Planning Director may require which will address environmental and regulatory concerns involving the requirements of the Special Permit.

If requested by the petitioner, any proprietary information will be kept confidential within the time frame as may be agreed to.

13. That all other applicable rules and regulations shall be complied with.
14. That the petitioner, Geothermal Exploration & Development Corp., shall be responsible for complying with the stated conditions of approval. This permit shall be non-transferable and non-compliance with this condition shall result in the automatic nullification of the permit.
15. That the petitioner provide a telephone number for use by local individuals in case of noise or odor complaints and have an employee available at the drillsite, 24 hours a day, to respond to any local complaints for the duration of the drilling activity.

16. That the petitioner conduct a noise monitoring program throughout the drilling operation. The petitioner shall submit the noise monitoring data to the Planning Department upon termination of the drilling operation or, at any time during drilling activity, upon the request of the Planning Director.

BARNWELL GEOTHERMAL CORPORATION

September 28, 1983

Mr. Sidney M. Fuke, Director
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Consolidated Geothermal Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364), & SP80-8 (LUC-471)

Dear Mr. Fuke:

In response to your letter of September 12, 1983, we are enclosing herewith our formal application for a consolidation of all our existing Special Use Permits, to be issued in the name of Barnwell Geothermal Corporation rather than Geothermal Exploration & Development Corp., (now a wholly owned subsidiary of Barnwell).

This application also requests a modification of conditions relating to time restrictions as follows:

- a. Eliminate specific starting and completion times for drilling wells, and instead specify that a minimum of one new well be commenced each year.
- b. Terms of Permit to be for four (4) years from time of approval (this approval will be required before December 16, 1983 to prevent lapse of Permit No. 471, unless interim extension granted to allow time for processing of consolidation).
- c. In place of needlessly restrictive time frames for the beginning and completion of wells, and as an offset to the additional time (four years) requested, we would agree to a termination of the consolidated permit once seven (7) successful wells have been drilled and tested. A successful well would be defined as having a tested capability of producing a minimum of 3 megawatts of electrical power (i.e. approximately equivalent to HGP-A).

The consolidation of these permits would also give the Planning Commission and Land Use Commission an opportunity to make conditions of all our existing permits uniform, in other respects, with the benefit of a background of almost six (6) years experience since the first permit was issued in July 14, 1977.

EXHIBIT A

Mr. Sidney M. Fuke, Director
Planning Department

September 28, 1983
Page Two

All previous supporting data, site plans, locations remain as before under the existing permits and in the interests of redundancy are not repeated in this application with the exception of the additional information which you require as follows:

1. Previously unexpected field conditions relate to the effects of extremely high temperatures encountered prior to and after penetrating potential geothermal zones. Casing materials and cementing procedures have been modified and upgraded to hopefully offset this problem, although this will not be proven until we have successfully completed at least one (1) well in this manner.
2. It is not yet possible to indicate "the most promising area" as this must depend upon the results of drilling and testing programs. The best indications are provided by findings of other drilling programs such as Puna Ventures and HGP-A, and their possible geothermal inter-relation with our wells.

At present our efforts are therefore concentrated in the Lanipuna and Daiichi area, and wells being planned are in effect step-out wells from the HGP-A location.

3. The immediate plan is to drill on Lanipuna Well Site No. 6, however, commencement has been delayed pending the Attorney General's opinion on Act 296.

We would then plan to drill an offset well at Daiichi Well Site No. 1, and then continue a series of offset wells to both Lanipuna No. 6 and Daiichi No. 1 to attempt to define the perimeter of the reservoir as it relates to our prospects.

If and when such efforts appears unsuccessful in that area, we would plan further drilling at Opihikao.

It is also possible that after drilling four or five successful wells in the Lanipuna and Daiichi area, that we would then move to prove out the Opihikao area. This future decision would depend upon findings up to that time, as well as the market and the necessity of moving quickly into a development program to meet such market demand.

Flexibility is therefore a key ingredient in conducting an exploratory program with an optimum of economy.

Mr. Sidney M. Fuke, Director
Planning Department

September 28, 1983
Page Three

4. Our anticipated development plans must await the outcome of our exploratory program and would entirely depend upon a cost effective commercialization of such findings.

It is our hope that we could develop from our present prospect a minimum of 25 megawatts within five to seven years, with a potential for at least 100 megawatts within fifteen years. This could represent a significant inflow of cash to the Big Island, on the average of \$5,000,000 to \$10,000,000 per year for wells and plants construction during the development stage.

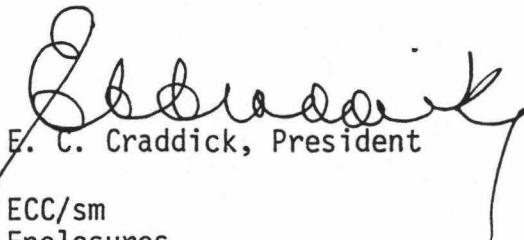
5. Over the past three (3) years, we have trained approximately fifteen local employees as full time drilling rig workers, receiving an average of \$12.00 to \$15.00 per hour, now constituting approximately 75% of our geothermal crews. This could be increased during a development program where several rigs would likely be used rather than the one we are using now.

Our rationale for requesting this consolidation was submitted to you on July 19, 1983, this letter and following exchanges between us can be incorporated as a supplement to this application if you wish, (copy of these letters included herewith).

Your early attention to this would be appreciated, as the existing termination date of December 16, 1983 will jeopardize the continuation of our Lanipuna Drilling Program.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

ECC/sm
Enclosures

cc: M. Kinzler
J. S. Barnwell, Jr.
D. J. Otwell
S. Eisenstat
A. Blumenthal
J. Clark
B. Craddick
V. Yamanaka
M. Gardner

Prospects for which consolidation of existing Special Use Permits and modification of conditions are requested:

1. Opihikao/Ashida Prospect

Tax Map Key: 1-3-1: Portions of 24 and 25

Special Use Permit No. 77-265 (LUC 364)

Present Termination Date: July 14, 1984

Six wells sites (one drilled)

Total Acreage: 118.180

Owner: Vern Yamanaka/Harold Ashida

2. Lanipuna Prospect

Tax Map Key: 1-3-8:6, 7, 19 and 1-3-9: Portion of 7

Special Use Permit No. 80-8 (LUC 471)

Present Termination Date: December 16, 1983

Six well sites (one drilled and redrilled)

Total Acreage: 12 acres (6 sites @ 2 acres each)

Owner: J. T. Trading Co., Ltd. and Auto Imports of Hawaii, Inc.

3. Daiichi Prospect

Tax Map Key: 1-4-2:10

Special Use Permit No. 80-347 (LUC 460)

Present Termination Date: February 10, 1984

Nine well sites (one site prepared only)

Total Acreage: 180.475

Owner: Daiichi Seiko of Hawaii, Inc.

APPLICATION FOR SPECIAL PERMIT
COUNTY OF HAWAII
PLANNING DEPARTMENT - PLANNING COMMISSION

APPLICANT: BARNWELL GEOTHERMAL CORPORATION

APPLICANT'S SIGNATURE: E. C. Craddick, President

ADDRESS: 2828 Paa Street, Suite 2085

Honolulu, Hawaii 96819

TELEPHONE: (808) 839-7727

TAX MAP KEY: See details attached AREA: See details attached
(Size of Parcel)

OWNER: (Remains the same as in the existing Special use Permits)

OWNER'S SIGNATURE: (Remains the same as in the existing Special use Permits)

APPLICANT'S INTEREST, IF NOT OWNERS: Applicant holds geothermal leases.

REQUESTED USE: Consolidation and modification of conditions for existing
Special Use Permits providing for geothermal exploration.

APPLICANT'S REASON(S) FOR REQUESTING SPECIAL PERMIT: *(Please attach)*
(SAME AS PREVIOUSLY SUBMITTED)

NOTE: The applicant must show that:

- (a) such use shall not be contrary to the objectives sought to be accomplished by the Land Use Law and Regulations;
- (b) the desired use shall not adversely affect surrounding properties;
- (c) such use shall not unreasonably burden public agencies to provide roads and streets, sewers, water, drainage, school improvements, and police and fire protection;
- (d) unusual conditions, trends, and needs have arisen since the district boundaries and regulations were established;
- (e) the land upon which the proposed use is sought is unsuited for the uses permitted within the district;
- (f) the proposed use will not substantially alter or change the essential character of the land and the present use; and
- (g) the request will not be contrary to the General Plan and official Community Development Plan and other documents such as Design Plans.

THIS APPLICATION MUST BE ACCOMPANIED BY:

- (a) 16 copies of the completed application form with attachments.
- (b) 16 copies of a location map. **(SAME AS PREVIOUSLY SUBMITTED)**
- (c) 16 copies of a site plan with existing and proposed uses. **(SAME AS PREVIOUSLY SUBMITTED)**
- (d) any additional information. **(SEE COVER LETTER)**
- (e) \$100.00 processing fee.
- (f) One (1) copy of full-size site plan drawn to scale. Site plan should include property lines, reference points (roadways, shoreline, etc.), and existing and proposed structures and uses. Site plan shall be 2 feet by 3 feet in size at a minimum. **(AS BEFORE)**



PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

HERBERT T. MATAYOSHI
Mayor

COUNTY OF
HAWAII

SIDNEY M. FUKU
Director

DUANE KANUHA
Deputy Director

September 12, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

Dear Mr. Craddick:

Consolidated Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364) & SP80-8 (LUC-471)

Thank you for your letter of August 25, 1983. Rather than continue this exchange of correspondence it appears to be more expedient for your request to consolidate your Special Permits to be placed before the County's Planning Commission and possibly the State Land Use Commission as early as possible.

Please complete the attached application and submit it to us at your convenience. For the "additional information" please submit a revised exploratory drilling program showing:

1. How the problems from "previously unexpected field conditions" (which has delayed your program) will be met with your revised materials and procedures.
2. Where your "most apparently promising area" is and a drilling schedule confirming this hypothesis along with a schedule for drilling the second and third exploratory wells to help define the perimeter of the reservoir if the first well is "successful." If the first well (from present day) is not "successful" then your schedule for drilling the second "most apparently promising area" as well as the sites and schedule for wells which must then be drilled for reservoir perimeter definition.

RECEIVED
SEP 15 1983

WATER RESOURCES
INTERNATIONAL, INC.

Mr. E. C. Craddick, President
Page 2
September 12, 1983

3. Please submit copies of your drilling reports to the Board of Land and Natural Resources for Ashida No. 1 and Lanipuna No. 1. We understand that the records for redrilling of Lanipuna No. 1 may still be kept confidential.
4. Your currently anticipated development plans based upon the completion of an exploratory program that confirms the presense of a geothermal resource on your properties.

Should you have any questions, please contact us.

Sincerely,


SIDNEY FUKU
DIRECTOR

RN:lgv

Enclosure

Ed -
Please call me
for clarification
if you want to.
mf

BARNWELL GEOTHERMAL CORPORATION

August 25, 1983

Mr. Sidney M. Fuke
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Consolidated Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364) & SP80-8 (LUC-471)
Your letter dated August 22, 1983.

Dear Mr. Fuke:

In reply to your question raised in the above referenced letter, we wish to advise as follows:

1. The "unexpected field conditions" refer to unanticipated effects of very high temperatures encountered necessitating a revision in the materials and procedures previously used.
2. We must plan for the complete exploration and evaluation of all our projects, Lanipuna, Daiichi and Ashida, however, in the course of this work we will have to be prepared to direct our concentration to the most apparently promising area, in order to provide for early enough development to meet market demands and to initiate plans for collecting systems and plant locations.
3. The locations and ownership of a power generating plant cannot be determined until more exploratory drilling is done. Among other things we must first determine the perimeters of any reservoir and the effects of topography. A plant will probably be located nearest a cluster of good geothermal wells - wherever that may be. Wells of different developers could also conceivably be pooled to feed a common plant.

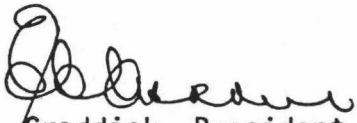
Mr. Sidney M. Fuke
Planning Department

August 25, 1983
Page 2

4. Our previous letter (paragraphs 4 and 5) expresses a common known concern, but is not intended as representing other developers. Barnwell intends to act independently and will not suspend its operations as a consequence of what other developers may do.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

ECC/mc

cc: Morton Kinzler
Samuel Eisenstat
Jim Barnwell
Bill Craddick
Murray Gardner



PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

COUNTY OF
HAWAII

HERBERT T. MATAYOSHI
Mayor

SIDNEY M. FUKU
Director

DUANE KANUHA
Deputy Director

August 22, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

Dear Mr. Craddick:

Consolidated Exploratory Drilling Program
SP80-347 (LUC-460), SP77-265 (LUC-364) & SP80-8 (LUC-471)

We have received your letter of August 12, 1983. We also received from HECO an announcement that addendum No. 2 to their Geothermal-Electric Power Development RFP will be issued shortly (enclosed). We are still awaiting the Attorney General's opinion.

In your response item No. 4 you cite the need to revise HECO's timetable "due to unexpected field conditions." Your initial exploration program was designed to meet some development objective based upon other factors such as financing and "expected field conditions." If you would amplify on the specifics of "unexpected field conditions" we may have a better understanding of both your exploration and development objectives/program.

Before we can make a recommendation to the Planning Commission we must be able to reasonably defend your program(s). Should your permits be consolidated do we assume your exploratory program to continue until the entire Lanipuna, Ashida and Daiichi series have been completely drilled to then select the optimum development site or would you intensify exploring a particular locale once the first "successful" well is located to meet HECO's contract requirements? Does your current development plan include the possibility of steam from Lanipuna, Daiichi and Ashida wells being transported to a "central" power plant?

RECEIVED

AUG 24 1983

WATER RESOURCES
INTERNATIONAL, INC.

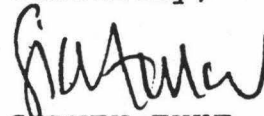
Mr. E. C. Craddick, President
Page 2
August 22, 1983

Your response items 4 and 5 implies that you are representing the interests of all geothermal developers in Hawaii. Can we assume that if Puna Geothermal Ventures or Campbell Estates/True-Mid Pacific Geothermal were to suspend operations for any reason, Barnwell Geothermal Corporation would also be forced to suspend operations?

Again we reiterate that the County of Hawaii is especially interested in the development of the geothermal resource. It is imperative that we operate under a mutually cooperative spirit to bring this into fruition.

Should you have any questions, please contact us.

Sincerely,



SIDNEY FUKU
Planning Director

RN:lgv

Enclosure

BARNWELL GEOTHERMAL CORPORATION

August 12, 1983

Mr. Sidney M. Fuke
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Consolidated Exploratory Drilling Program
SP80-347 (LUC 460), SP77-265 (LUC 364), & SP80-8 (LUC 471)

Dear Mr. Fuke:

Thank you for your response of 9 August 1983. Our reply to your questions in the order asked is as follows:

1. We are aware that the final decision is to be made by the Land Use Commission, following the hearing and recommendation of your planning commission.
2. There will be no problem on consolidation of permits as far as permittees are concerned.
3. We are agreeable to the same criteria for successful wells as would apply under Condition #9 of the Special Use Permit 80-347, issued February 10, 1981, wherein it was stipulated that "upon discovery of three successful wells, all further exploratory drilling shall immediately cease", with no specific quantities mentioned.
4. It is our understanding that H.E.C.O. is aware of the necessity of revising their timetable to adjust to the realities of the developers' geothermal programs, which have all been delayed and revised, due to unexpected field conditions.
5. The Attorney General's opinion of S. B. 903 (Act 296) is also of interest to us as we are assuming that the intent of the grandfather clause is to cover any existing Special Use Permits. If this was not so the whole geothermal effort in Hawaii would come to a halt and the future of geothermal be placed in dire jeopardy.

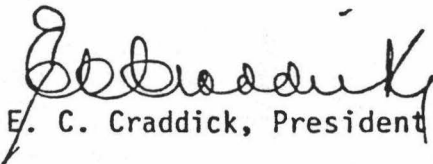
Mr. Sidney M. Fuke
Planning Department

August 12, 1983
Page 2

Please advise when you are in a position to consider our request. As you know the existing permits begin expiring in December 1983, and we would need a decision before that time if we expect to keep our geothermal program alive.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

cc: Morton Kinzler
Samuel Eisenstat
Jim Barnwell
Bill Craddick
Murry Gardner



PLANNING DEPARTMENT

25 AUPUNI STREET • HILO, HAWAII 96720

COUNTY OF
HAWAII

HERBERT T. MATAYOSHI
Mayor

SIDNEY M. FUKU
Director

DUANE KANUHA
Deputy Director

August 9, 1983

Mr. E. C. Craddick, President
Barnwell Geothermal Corporation
2828 Paa Street, Suite 2085
Honolulu, HI 96819

Dear Mr. Craddick:

Consolidated Exploratory Drilling Program
SP80-347 (LUC 460), SP77-265 (LUC 364), & SP80-8 (LUC 471)

We are responding to your inquiry of July 19, 1983 requesting that "all existing permits be lumped together and extended for a period of four (4) years from present termination dates, without specifying any order of work." This request coupled with your rationale raises the following:

1. ³⁴⁷SP80-~~457~~ (LUC 460) and SP77-265 (LUC 364) are both issued by the State's Land Use Commission (LUC) and SP80-8 (LUC 471) was issued by the County's Planning Commission. The total surface area of land covered by these three special permits exceeds fifteen acres, thus the question of consolidating the permits into one must be decided by the LUC.
2. SP80-347 (LUC 460) and SP77-265 (LUC 364) are both issued to Geothermal Exploration and Development Company while SP80-8 (LUC 471) is issued to Barnwell Geothermal Corporation. The proposed consolidation of permits must be done with the concurrence of both permittees.
3. You state that a "meaningful exploratory program...requires the completion of at least seven (7) successful wells as follows: Opihikao/Ashida Prospect 2 wells, Daiichi Prospect 2 wells, and Lanipuna Prospect 3 wells." You further define "successful wells" to mean "tested a minimum of 3 megawatts each." At this time, with so little data on the reservoir(s) such a definition of "successful wells" may be premature. In theory, with an exploratory program, each well adds to the body of knowledge regarding the

Mr. E. C. Craddick, President
Page 2
August 9, 1983

resource(s). This stipulation suggests that your exploratory program is designed to meet some predetermined development objective. What your development objective is at this time remains unclear.

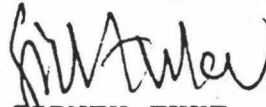
4. The estimated "time requirement of at least four (4) years to accomplish a minimum program of 7 wells" will take you into 1987-1988 to complete your exploratory program. We also understand your company responded to HELCO's Request for Proposals (RFP) for Geothermal Power Development (as added of April 23, 1981). It appears that your meeting HELCO's timetable will be compromised by your amended exploratory program. Again your development objective appears to have changed from the representations made for each special permit application.
5. With regard to S.B. 903 (now Act 296, SLH 1983), it is our understanding that the State Attorney General's opinion has been requested on questions similar to those you present. This opinion should provide us with further insight.

The development of the geothermal resource is an objective desired by many, especially the County of Hawaii. Exploration and development costs being as high as they are, mandate a very well planned and managed approach involving both the private and public sectors. It is imperative that all parties involved operate under a mutually cooperative spirit to bring this desire into fruition.

In that spirit, and in trying to respond to your request, we find that some direct responses from Hawaii Electric Light Company, the Land Use Commission, and the State's Attorney General are needed first. Further, your letter concurrently raises questions which only you can answer. As such, until all of that information is available, it is difficult for us to consider the propriety of your request at this time.

Should you have any questions, please do not hesitate to contact our office at 961-8288.

Sincerely,



SIDNEY FUCE
Planning Director

RN/SF:gs

cc: Morton Kinzler
Samuel Eisenstat
Jim Barnwell
Bill Craddick
Murry Gardner

July 19, 1983

Mr. Sidney Fuke, Director
Planning Department
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Special Use Permits for a Consolidated
Exploratory Drilling Program

Dear Mr. Fuke:

A meaningful exploratory program on our three leases requires the completion of at least seven (7) successful wells as follows:

Opihikao/Ashida Prospect	2 Wells
Daiichi Prospect	2 Wells
Lanipuna Prospect	3 Wells

We have only drilled four (4) geothermal wells in the last forty (40) months, two for us and two for Thermal Power Company, using our drilling rig. Most of the wells need reworking, perhaps as much as two months each. This means, the Exploratory Program 1980-83 will yield at best one or two successfully completed exploratory geothermal wells.

In retrospect, this means that time limitations heretofore placed on the Special Use Permits have been much too restrictive. Without recognizing this, and without allowing for realistic time, we will be constantly applying for extensions in order to keep our geothermal program alive to conform to the drilling requirements of our lease agreements.

We must also assume that our rig will be needed by Thermal Power Company (Puna Ventures) for at least one and possibly two more wells in the next year or two.

Assuming that some of the past construction problems are solved, we would expect to improve the past average rate of one well per year to two wells per year. This translates to a time requirement of at least four (4) years to accomplish a minimum program of 7 wells.

We, therefore, request that all existing permits be lumped together and extended for a period of four (4) years from present termination dates, without specifying any order of work. We would be agreeable to stipulating that the permit terminates as soon as 7 successful wells (i.e. tested a minimum of 3

Mr. Sidney M. Fuke, Director
Planning Department
County of Hawaii

July 19, 1983
Page Two

megawatts each) of the 19 remaining drilling sites presently permitted are drilled and tested. It is absolutely necessary to keep the drilling program flexible, as the location of each successive well drilled will depend upon the information obtained from prior wells. Therefore, any attempt to force a schedule unnecessarily restricts a meaningful and economical development of geothermal information.

The likelihood of S.B. 903 (now signed by the Governor) not being fully implemented for two years makes it even more imperative that current Special Use Permits remain active and workable to insure an ongoing geothermal program. We would regard any lengthy lapse (of six months or more) in the continuity of the present geothermal activity as seriously jeopardizing the future of geothermal power in Hawaii.

We, therefore, urge you to seriously consider the necessity for leniency in time restrictions, and adjust future needs on the basis of actual past experience, recognizing that it is in the public interest to keep our geothermal effort alive in Hawaii.

Attached hereto is a summary of our current Special Use Permits, and our remarks applicable to each. Emphasis will be placed upon first exploring the Lanipuna and Daiichi prospects and then following with the Opihikao/Ashida prospect, which is more remote from the present center of activity.

With regard to S.B. 903, it is our understanding that present permits, including extensions of or modifications thereto, are grandfathered, but that any extensions to our programs such as acquisition of new leases or additional new Special Use Permits shall await implementation of S.B. 903.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

E. C. Craddick, President

ECC/al
Enc.

cc: M. Kinzler
J. S. Barnwell, Jr.
D. J. Otwell
S. Eisenstat
J. Clark
B. Craddick
V. Yamanaka

PERMIT: Daiichi Prospect
SP80-347 (LUC 460)
Geothermal Exploration & Development Corp.
9 Wells - (3 Successful)

EFFECTIVE DATE: February 10, 1981

CONDITIONS: June 4, 1983 (First Well completed)*

TERMINATION DATE: February 10, 1984 (Extension recommended by
Planning Commission)

Requesting that additional time to complete exploratory work by drilling at least two successful wells, without stipulating when any well should be started or completed.

Require extension of termination date to December 16, 1987.

This permit may be lumped together with the Lanipuna and Opihikao projects.

*NOTE: One (1) year extension recommended by Planning Commission.

PERMIT: Opihikao/Ashida Prospect
SP77-265 (LUC 364)
Geothermal Exploration & Development Corp.
6 Wells

EFFECTIVE DATE: July 14, 1977 (starting date July 17, 1978)
July 14, 1979 (extended)
July 14, 1980 (extended)
March 14, 1983 (extended)

CONDITIONS: Second well to commence March 4, 1984

TERMINATION DATE: July 14, 1980
July 14, 1981 (extended)
July 14, 1984 (extended)

Requesting that additional time to complete exploratory work for at least two successful wells of the 5 remaining well sites with elimination of conditions requiring a specific start or finish of any well, including current conditions to commence the second well by March 4, 1984.

Require extension of termination date to December 16, 1987.

This permit may be lumped together with our Lanipuna and Daiichi projects.

PERMIT: Lanipuna Prospect
SP80-8 (LUC 471)
Barnwell Geothermal Corporation
6 Wells

EFFECTIVE DATE: December 16, 1980

CONDITIONS: December 16, 1981 (First Well completed)

TERMINATION DATE: December 16, 1983

Requesting that additional time to complete exploratory work by drilling at least three successful wells, without stipulating when any well should be started or completed.

Require extension of termination date to December 16, 1987.

This permit may be lumped together with our Daiichi and Opihikao projects.



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KIPU PT.

1960 Lava Accretion

CAPE KUMUKAHI

MAKAUKIU

NANAWALE BAY

KAPOHO PT.

KAPOHO

KAPOHO CRATER

HALEKAMAHINA

KAHOLUA O KAHAWALI CRATER

POHOIKI

PUU HUAJALA

PUULENA CRATER

MALAMA-KI FOREST RESERVE

PAHOA

OPIHIKAO

SP77-265

TRUE NORTH
SCALE 1" = 4,000'

THERMAL POWER COMPANY/
DILLINGHAM CORPORATION

GEOHERMAL EXPLORATION
AND DEVELOPMENT CORP.

BARNWELL GEOHERMAL CORP.

HAWAII GEOHERMAL PROJECT

GEOHERMAL EXPLORATION
AND DEVELOPMENT CORP.

LUC Exhibit 'A'



SP77-265 GEOTHERMAL EXPLORATION & DEVELOPMENT CORP.



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