

PLANNING COMMISSION

Planning Department
County of Hawaii
Hilo, Hawaii

APPLICATION FOR SPECIAL PERMIT)	
by)	
BARNWELL GEOTHERMAL CORPORATION)	SPECIAL PERMIT
for)	NO. <u>471</u>
GEOTHERMAL EXPLORATION AND)	
EVALUATION)	
in)	
KEAHIALAKA, PUNA, HAWAII)	

SPECIAL PERMIT

The County Planning Commission at a duly held public hearing on December 16, 1980, considered the application of BARNWELL GEOTHERMAL CORPORATION for a Special Permit in accordance with Chapter 205, Section 205-6, Hawaii Revised Statutes, as amended, and Rule No. 6 of the Planning Commission relating to Special Permit to allow the drilling of six wells for geothermal exploration and evaluation in Keahialaka, Puna, Hawaii, Tax Map Key 1-3-08:Portions of 6, 7, & 19 and 1-3-09:Portions of 7.

The Commission has found the following:

1. That the proposed use will not be contrary to the objectives sought to be accomplished by the State Land Use Law and Regulations. The purpose of the Land Use Law and Regulations is to protect, preserve, and encourage the development of lands in the State for the public health and welfare of the people of the State of Hawaii. The area under consideration is classified as Agricultural by the State Land Use Commission. The Agricultural District not only includes lands with a high capacity of potential for agricultural uses, but also lands which are surrounded by or contiguous to agricultural lands and which are not suited to agricultural and ancillary activities by reason of topography, soils, and other related characteristics. The subject property's dominant soil types are Aa and Pahoehoe lava flows. The Land Study Bureau's overall master productivity rating for agricultural use of these lands is "E," or very poor. This is the lowest class on the scale. Although it is possible that some agricultural activities may be conducted on the subject property, it is determined that approval of the subject request would not be contrary to the objectives of the State Land Use Law and Regulations given the master productivity rating of the subject property for agricultural use and the above-cited criterion for determining the Agricultural District.
2. The proposed use will not substantially alter or change the essential character of the land and its present use. A maximum of twelve acres of land will be used for the drill sites. The remaining area of the parcels involved can still be used for agricultural purposes should the landowners so desire. It is therefore determined that the

granting of this particular request would not be in conflict with the State and County's Agricultural policies.

3. That unusual conditions, trends and needs have arisen since the district boundaries and regulations were established. Rising fossil fuel costs and the recent realization that supplies are not unlimited have accelerated the search for renewable, alternative energy resources. When the district boundaries and regulations were established, the present energy situation and the efforts and resources needed to address it was not anticipated. Therefore, provisions for utilizing alternative energy resources were not included in any of the four land use districts.
4. Electricity is the major form of energy utilized in Hawaii County. The power rate on this island is among the highest in the nation. A factor which contributes to this situation is the present method of power generation. Most of the electricity is obtained through the burning of imported oil. The cost of fuel coupled with transportation costs cause higher rates. Recognizing this concern, the General Plan has stated as a policy that "The County shall encourage the continuation of studies concerning the development of power which can be distributed at lower costs to consumers." One (1) of the major economic significance of geothermal energy is that it would presumably provide inexpensive indigenous power. It is therefore determined that the granting of this particular request would be in the direction of fulfilling the above-stated policy as well as the goals of the General Plan's Public Utilities Element of "Ensuring that adequate, efficient and dependable public utility service will be available to users," and "Maximizing efficiency and economy in the provision of public utility services."

Furthermore, it has been the County and State's policy to encourage the development of alternative energy power. Both levels of government have provided substantial funding and services for energy resource research and development to reduce the State's dependence on imported fuels. The island of Hawaii is believed to possess a vast resource base of geothermal heat. A project jointly sponsored by the County, State and Federal governments demonstrated the existence of a valuable geothermal energy source only 1800 feet away from the proposed well sites. The purpose of the subject application is to determine and define the existence and potential size of a geothermal resource, in commercial quantities, at this particular location.

As a potential power source, geothermal may either prove to be of major importance or no importance at all. Only through drilling and testing can this uncertainty be resolved. It is from these exploratory wells that data for evaluating the suitability of the resource as a production reservoir are obtained. Therefore, by allowing the proposed use, we would also be in the direction of fulfilling the County's goals, as stated in the recently adopted Energy Element of the General Plan, of striving for energy self-sufficiency and establishing the Big Island as a demonstration community for the development and use of natural energy resources.

5. Although it has been pointed out that the proposed use of the land for its intended purpose may have some adverse effects, such as problems of noise and fumes, to the surrounding properties and the residents in the immediate area, stringent controls and conditions will be attached to this Special Permit in order that the concerns may be alleviated. The petitioners will be required to comply with all applicable requirements of the State of Hawaii Department of Health.
6. That the proposed use will not unreasonably burden public agencies to provide roads, water, and other essential infrastructures and services.

Finally, we are cognizant of the fact that the granting of this particular Special Permit may lead to similar types of requests. As such, it should be pointed out that we are working on a policy of such exploratory programs to minimize rampant development of test wells. The qualification of our favorable recommendation to allow the petitioners to proceed with this development is that the total project shall be closely monitored and the petitioners will be held accountable to stringent standards to insure minimal damage to our environment. Furthermore, to minimize dangers to the health of residents in the immediate area, preventative measures will be required as conditions of approval of the Special Permit.

Therefore, the Commission hereby grants to the petitioner a Special Permit to allow the drilling of six wells for geothermal exploration and evaluation in Keahialaka, Puna, Hawaii, pursuant to the authority vested in it by Chapter 205, Section 205-6, Hawaii Revised Statutes, as amended, and Rule No. 6 of the Planning Commission.

Approval of the Special Permit is subject to the following 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 drilling of the first well shall commence within one (1) year from the effective date of approval of the Special Permit.
5. That the length of this Special Permit shall be for a period not to exceed three (3) years from the effective date of the Special Permit.

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 restricted to 5 days per week, Monday through Friday.
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 plans for the well sites are submitted to the Planning Department for review.
12. That the data obtained from the proposed wells must be shared with the HGP-A Development Group and the County Planning Department, provided that such data shall be kept in strict confidence by those parties under the durational terms as stated in Regulation 8, Rule 2, Section 2.8 of the Rules and Regulations of the Department of Land and Natural Resources.
13. That all other applicable rules and regulations shall be complied with.

Should the foregoing conditions not be met, the Special Permit may be deemed null and void by the Planning Commission.

The effective date of the Special Permit shall be December 16, 1980.

Dated at Hilo, Hawaii, this 8th day of January, 1980.


 WILLIAM J. PARIS, JR.
 Chairman, Planning Commission

APPROVED AS TO FORM
 AND LEGALITY:


 DEPUTY CORPORATION COUNSEL
 COUNTY OF HAWAII

Date: 30 Dec 80



PLANNING COMMISSION

25 AUPUNI STREET • HILO, HAWAII 96720

COUNTY OF
HAWAII

CERTIFIED MAIL

November 28, 1983

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

Dear Mr. Craddick:

Amendment to Special Permit No. 471
TMK: 1-3-8:6, 7, 19 and 1-3-9:Portion of 7

The Planning Commission at its duly held public hearing on November 22, 1983, considered the amendment to Special Permit No. 471, at Keahialaka, Puna, Hawaii.

The Commission voted to approve the amendment, as stated above, 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..

EXHIBIT B

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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.

Approval of this amendment is subject to the following conditions, 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.

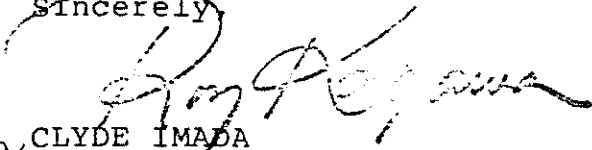
13. A disposal site or sites, approved by the State Department of Health, shall be provided for sump contents and other waste materials to be disposed of from the drilling activity.
14. All sumps/ponds shall be purged in a manner meeting with the approval of the State Department of Health.
15. When wells 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, 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.

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

Sincerely



for CLYDE IMADA
Chairman, Planning Commission

cc: Building Division, Public Works
Dept. of Water Supply