

July 24, 1989

MEMORANDUM

TO: Mr. William W. Paty

FROM: Manabu Tagomori

SUBJECT: DLNR STATUS REPORT ON GEOTHERMAL ACTIVITIES

10:00 AM P2:42

DEPARTMENT OF LAND AND NATURAL RESOURCES
STATE OF HAWAII

HISTORICAL BACKGROUND

- o HGP-A well completed, July 1976.
- o Administrative Rules, Chapter 13-183, for the Leasing and Drilling of Geothermal Resources were adopted on May 1978.
- o Administrative Rules, Chapter 13-184 for the Designation and Regulation of Geothermal Resource Subzones were adopted on August 1984.
- o Six (6) State Geothermal Resource Mining Leases (GRML) have been issued to the following:
 - a. GRML S-4602 (HGP-A Well), issued 1979.
Lessee: Research Corporation of the University of Hawaii (RCUH). Sublessee: Natural Energy Laboratory of Hawaii (NELH). Total acreage: 4 acres.
Landownership: State Land Use Classification (LUC): Agriculture (AG)
 - b. GRML R-1, issued 1981
Lessee: Bishop Estate. Sublessee: Puna Geothermal Venture (PGV/ORMAT). Total acreage: 3,487 acres.
Landownership: Private
LUC: AG (3,044 acres)
Conservation (443 acres)
* Only 751 acres (AG) contained within the GRS.
 - c. GRML R-2, issued 1981.
Lessee: Kapoho Land Partnership. Sublessee: Puna Geothermal Venture. Total acreage: 816 acres.
Landownership: Private LUC: AG
 - d. GRML R-3, issued 1981.
Lessee: Barnwell Geothermal Corporation. Total acreage: 777 acres.
Landownership: Private LUC: AG

MINING LEASES (continued):

- e. GRML R-4, issued 1982.
Lessee: Puna Geothermal Venture. Total acreage: 279 acres.
Landownership: Private LUC: AG
- f. GRML R-5, issued 1987.
Lessee: Campbell Estate. Sublessee: True/Mid-Pacific Geothermal Venture. Total acreage: 9,014 acres.
Landownership: Private
LUC: AG (618 acres) Conservation (8,396 acres)
- o Total acreage leased by the State: Approx. 14,377 acres.

FOUR (4) DESIGNATED GEOTHERMAL RESOURCE SUBZONES (GRS)

- o Kilauea Lower East Rift GRS:
Kapoho Section GRS: 5,756 acres. Designated 10/16/84. (Excludes GRML R-2 and R-3. Leases R-2 and R-3 were designated ("grandfathered" by the Legislature) as subzones only for the duration of the leases.)

Landownership: Private (5,752 acres) State (3 acres)
Land Use Classification (LUC): both Conservation (CONS) and AG.
- o Kamaili Section GRS: 5,531 acres. Designated 10/16/84.

Landownership: Private LUC: AG
- o Kilauea Middle East Rift GRS: 9,014 acres. Designated 12/20/85.

Landownership: Private (8,850 acres) State (164 acres)
LUC: AG (618 acres) CONS (8,396 acres)
- o Haleakala Southwest Rift GRS: 4,108 acres. Designated 10/16/84.

Landownership: Private (3,573 acres) State (535 acres)
LUC: Both CONS and AG.

PENDING SUBZONE DESIGNATION

- o Proposed Kilauea Southwest Rift GRS: 8,090 acres.
Designation - Pending. (Requests for contested case hearing on the subzone proposal are currently under review by the Attorney General's office, and a determination will be made as to whether the requests may be denied or if a hearing is in order.)

Landownership: Private (3,162 acres)
State (4,928 acres)

LUC: AG.
- o Total acreage within subzones (including R-2 and R-3):
24,409 acres + (1,593 acres) = approx. 26,000 acres.

EIGHT (8) GEOTHERMAL WELLS DRILLED (including one side-track directional well).

- o Successful wells (4):
HGP-A (1976) by NELH
Kapoho State 1 (1981) by PGV
Kapoho State 2 (1982) by PGV
Kapoho State 1-A (1985) by PGV
- o Unsuccessful wells (4):
Ashida 1 (1980) by Barnwell
Lanipuna 1 (1981) by Barnwell
Lanipuna 1 / Side-track (1983) by Barnwell
Lanipuna 6 (1984) by Barnwell
- o (Note: Two (2) wells drilled at Puu Waa Waa (1978) by Puu Waa Waa Steam Company. Both wells were unsuccessful and were converted to water wells.)

CURRENT GEOTHERMAL ACTIVITIES

- o HGP-A Power Plant Facility presently producing about 2.3 megawatts of electricity.

Discussions are currently underway between Puna Geothermal Venture (PGV) and the Natural Energy Laboratory of Hawaii (NELH) concerning the future status of the HGP-A well and power plant facility. Termination options include the complete shut down of the power plant and the continued use of the HGP-A well. This plan proposes that steam/brine would be transported from HGP-A and supplied to PGV/ORMAT with the provision that PGV would continue to provide brine for the existing Puna Geothermal Research Facility.

CURRENT ACTIVITIES (continued):

HGP-A (cont.)

DLNR is has reviewed the proposed termination options as it pertains to our area of concern, including but not limited to, the lease (GRML S-4602) provision for the waiver of royalty payments to the State, and the condition and integrity of the HGP-A casing and well head structure.

Based on staff's analysis of the options, DLNR recommends the following transition plan for the HGP-A well and power plant facility:

- 1) Shut down of the HGP-A well and power plant as soon as practicable. The timetable for termination of all operations should take into consideration current operating commitments to HELCO, provided that all applicable regulations and lease requirements related to public safety and the protection of the environment continue to be met until such time as the suspension of all operations are feasible.
- 2) Upon the shut down of the HGP-A well, the lessee/operator shall be required to conduct well tests, including but not limited to, a casing caliper log, spinner surveys, and cement bond log to evaluate the integrity of the existing casing. In addition, the lessee/operator shall take appropriate action to remove the existing brine percolation ponds and provide for the reclamation/revegetation of all disturbed lands in manner approved by the Chairperson.
- 3) The results of the tests identified in item (2) above, shall be submitted to the Department for review within 30 days after the completion of the tests. If it is determined that the well casing and cement bond is satisfactory (i.e. no corrosion or cracks are found), or if any defects are discovered and are properly corrected, then the HGP-A well may be approved for continued use. (It may be advisable to contract an independent consultant such as a reservoir engineer whose specialty includes the analysis and evaluation of down-hole data to assist the Department in its review.)

o HGP-A (continued)

4) Concerning the DBED proposal to provide geothermal resource to Puna Geothermal Venture (PGV), who would then supply brine back to the Noi'i O Puna Research Facility, it is recommended that the Department not permit the continued use of percolation ponds at the research facility, but instead require re-injection of these fluids by PGV or NELH (which would require NELH to drill their own injection well subject to State/County approvals).

5) Lastly, should negotiations between PGV and NELH result in an agreement to supply steam/brine from HGP-A to PGV (provided that the well is tested and approved), it is recommended that the lease (GRML S-4602) provision for waiver of royalties be terminated (on the assumption that the provision is not transferrable to GRML R-2) and that any State revenues received from the sale of the resource to PGV, be used for special capital improvement projects located in the Puna District, island of Hawaii. (One such project that could be considered is the construction of county water lines into areas that are dependent upon catchment water systems.)

o PUNA GEOTHERMAL VENTURE/ORMAT (formerly Thermal Power Co.)

Operator for leases R-2 and R-4 in the Kapoho GRS, and R-1 in the Kamaili GRS.

Has drilled (3) successful wells: Kapoho State 1, 2, and 1-A. Currently, KS-1 and KS-2 are temporarily plugged. KS-1A is presently shut-in but not plugged.

On 3/10/89, the Board of Land and Natural Resources approved PGV's Amended Plan of Operations for lease R-2.

PGV/ORMAT submitted an application for a geothermal well modification permit to set a temporary cement plug in the existing well Kapoho State 1A. The application was reviewed and a modification permit was issued on 6/16/89 by the Department.

PGV has applied for a Geothermal Well Drilling Permit to drill a new well designated as Kapoho State # 3. The permit application is currently under review by the Division of Water and Land Development and the Division of State Parks.

o TRUE/MID-PACIFIC (T/MP) GEOTHERMAL VENTURE

Operator for lease R-5 (issued to Campbell Estate) in the Kilauea Middle East Rift GRS.

On 3/23/89, the Board approved True/Mid-Pacific's Plan of Operations for lease R-5.

The Department has received and approved the following: 1) True/Mid-Pacific's application for a geothermal well drilling permit for well T/MP A1-1, 2) their request for modifications to the conditions of the Board of Land and Natural Resources' Decision and Order dated April 11, 1986, and 3) Environmental Monitoring Plans and Programs.

In compliance with the Board's D/O, True/Mid-Pacific submitted an Archaeological Research Design which was reviewed by the Department and approved on 6/16/89. Upon confirmation of the DLNR's final ministerial approval, the Hawaii County Department of Public Works issued a Grubbing Permit to True Geothermal Energy Co.

As part of the Department's regulatory and monitoring functions, staff was sent (on 6/30/89) to conduct a site inspection of the access road and drill site which was cleared and grubbed by True/Mid-Pacific (Applicant). The inspection concluded that a violation had occurred, and that the Applicant had exceeded their approval to clear 3 acres for the drill site within the Conservation District.

A follow-up inspection of the clearing activity was conducted on 7/11/89, and with the assistance of the DAGS Survey Division, a measurement/survey of the grubbed area was completed. Measurements indicate that a total of approximately 8.5 acres was cleared.

On 7/11/89, the Department issued a Notice and Order to cease and desist any further activity within the Conservation District. The Cease and Desist Order was sent to Campbell Estate and True Geothermal Energy Co. (Hank True III and Allan Kawada).

DLNR staff is currently reviewing the matter of the violation. The Board of Land and Natural Resources is expected to take action on the matter at its next meeting on 8/11/89, at which time a penalty will be imposed on the developer.

o BARNWELL GEOTHERMAL CORPORATION

Operator for lease R-3 in the Kapoho Section GRS.

Unsuccessfully drilled (2) wells (plus one directional well) in the Kapoho Section GRS and one well (Ashida 1) in the Kamaili Section GRS.

All operations are currently suspended.

The Department has transmitted a letter to Barnwell Geothermal Corp. requesting an update and status report on their existing wells (Lanipuna No. 1 and 6) and future plans for the area covered under lease GRML R-3. (Should the developer indicate their decision to terminate all development activities, steps will be initiated by the Department to insure the proper abandonment of the existing wells drilled by Barnwell, including the revocation of the mining lease, if warranted.)

o UNIVERSITY OF HAWAII/RCUH/DBED PROJECT

Proposes to conduct a Scientific Observation Hole (SOH) Program on both the islands of Hawaii and Maui, to drill as many as (6) exploratory test holes approx. 4,000 to 6,000 feet in depth within designated GRS areas. Two in the Kapoho Section GRS, one in the Kamaili Section GRS, one in the Kilauea Middle East Rift GRS, and possibly two in the Haleakala Southwest Rift GRS.

UH/HNEI has submitted Geothermal Well Drilling Permit applications for (6) Scientific Observation Holes (SOH): (4) located on the island of Hawaii and (2) located on the island of Maui. Three geothermal well drilling permit applications for the island of Hawaii (SOH 1, 2, and 4) have been reviewed and approved by the Department. The geothermal well drilling permit application for SOH 3 (proposed within the Campbell CDUA permitted area) and a request for authorization to conduct such activity in the area, are currently under review by the Department as to their compliance with the Board's Decision and Order dated April 11, 1986 and other related DLNR conditions.

In addition, the project will require the approval of the Hawaii County Planning Commission and the issuance of County Geothermal Resource Permits for SOH 1, 2, and 4. Mediation proceedings have been completed and the Planning Commission is to take action on the GRP application at its next meeting on 8/8/89.

PENDING GEOTHERMAL ACTIVITIES

- o Pursuant to statutory amendments, DLNR is preparing to amend both Administrative Rules, Chapter 13-184, on the Designation and Regulation of Geothermal Resource Subzones, and Chapter 13-183, on the Leasing and Drilling of Geothermal Resources. (Estimated completion within 6 months.)
- o A pending request for contested case hearing on the proposed designation of the Kilauea Southwest Rift GRS, is currently under review by the Attorney General's Office.
- o A Public hearing was held on 4/20/89, for a landowner initiated request for geothermal subzone designation of approx. 40 acres adjacent to the existing Kapoho Section GRS. The open period (15 days) for submittal of written testimony ended on 5/5/89. The Board is expected to take action on the matter at its next meeting on 8/11/89. (Based on review of the testimony received and evaluation of applicant's request, staff is recommending denial of the requested subzone designation.)
- o Pursuant to many landowner initiated requests for withdrawal of private properties from the existing Kapoho Section GRS, the Department has initiated preliminary review of these (written/verbal) requests and will schedule a public hearing to receive testimony on these requests for subzone modification when all information has been compiled and evaluated.
- o The Department has received and begun processing of a Conservation District Use Application and Environmental Assessment for the Pohoiki Geothermal Transmission Line. The proposed project is to construct two 69 KV transmission lines between the Pohoiki (PGV) geothermal site and the Puna Substation within a 50-foot wide easement of the Nanawale Forest Reserve (TMKs: 1-4-03:08 and 1-4-01:04) in the Puna District, island of Hawaii. The Department has concluded that a public information meeting will be required and has determined that a Negative Declaration is appropriate for the project. (It should be noted that the Negative Declaration determination only applies to the small portion of the project that is located in the Conservation District and does not apply to the balance of the project located outside of the Nanawale Forest Reserve. The environmental determination on the rest of the transmission line project will occur independent of this present application with the Department.)

PENDING ACTIVITIES (continued):

- o DOCARE reports that within and adjacent to geothermal resource subzone areas, approximately 200,000 marijuana plants were eradicated by the Department. Recent helicopter reconnaissance reveals new plantings of considerable amounts in those same areas. (See attached memorandum.)

GEOHERMAL AND CABLE SYSTEM DEVELOPMENT PERMITTING ACT (ACT 301)

- o A Geothermal/Cable Interagency Group has been established, consisting of the following agencies:

Department of Land and Natural Resources
Department of Transportation
Office of State Planning
Department of Health
Department of Business and Economic Development
County of Hawaii
County of Maui
City & County of Honolulu
U.S. Corps of Engineers
U.S. Navy
U.S. Coast Guard
U.S. Environmental Protection Agency
U.S. Geological Survey
U.S. Fish and Wildlife Service
National Marine Fisheries Service
National Park Service

- o The Geothermal/Cable Permit Center to provide permit information and assistance to potential applicants has been established and is now in operation.
- o Administrative Rules for Chapter 196-D, HRS, (ACT 301), have been drafted and statewide public hearings on the proposed rules were conducted on June 21, 1989. The Board of Land and Natural Resources will take action to adopt the proposed rules at its meeting on 7/28/89 and immediately forward the rules to the Attorney General's office for approval as to form prior to transmittal to the Governor for his final approval.
- o The Board of Land and Natural Resources has approved the hiring of a Librarian and a Public Relations Specialist to assist in the implementation of Act 301 and the operations of the Geothermal/Cable Permit Center.


MANABU TAGOMORI

JOHN WAINES
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF CONSERVATION AND RESOURCES ENFORCEMENT

P. O. BOX 534
HONOOLULU, HAWAII 96721-0534
July 21, 1989

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MEMORANDUM:

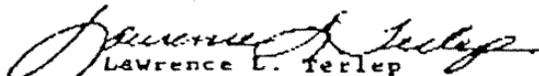
TO: Manabu Tagomori, DONALD
FROM: Lawrence L. Terlep, Hawaii Branch Chief
SUBJECT: Geothermal Development Input DOCARE
Pakalolo Growing

DIV. OF WATER &
LAND DEVELOPMENT

With regard to memo dated 7/20/89 from Deputy Landgraf, please find response to Pakalolo problem in the Puna district on the island of Hawaii.

Within and adjacent to lands of geothermal resource area subzones, approximately 200,000 marijuana plants were eradicated by DOCARE.

Recent helicopter reconnaissance reveal new plantings of considerable amounts in those same areas.


LAWRENCE L. TERLEP

LLT/mjy
Attach.