

DEPARTMENT OF LAND AND NATURAL RESOURCES  
Land Division  
Engineering Branch

May 14, 1999

TO: Dean Uchida, Administrator

THROUGH: Andrew Monden, Chief Engineer

FROM: Nami Hamaguchi, Engineer

SUBJECT: **Geothermal Program - Strategy and Implementation Plan**

This plan is the result of merging the Geothermal Issues and Projects Plan prepared by Mr. Eric Tanaka dated September 30, 1998, and an August 19, 1998, memorandum from Mr. Dean Nakano of the Commission on Water Resource Management, with the results of file and document research and discussions with Messrs. Tanaka and Nakano.

A. Continued Regulatory Oversight of Puna Geothermal Venture (PGV) Operations

Priority: High

Scope: Clarification of DLNR regulatory responsibilities and related permitting requirements in advance of resumed drilling operations by PGV.

Issues: 1) Drilling activity to resume within 6-12 months. Required regulatory staff support will need to be determined and provided for based on expected level of activity.  
2) Annual Asset Fund contribution requirement per Geothermal Resource Permit (GRP) Condition 51 will need to be resolved between DLNR, PGV and the County of Hawaii (see Attachment 1).

Requirement: Need to initiate discussions with PGV and the County of Hawaii to resolve continued Asset Fund payment schedule.

Resolution Option: Mr. Nakano has requested PGV submit a draft funding proposal for review by DLNR.

Task Duration: 3 months

B. Plugging and Abandonment of State-Owned Wells

Priority: High

Scope: Plugging and abandonment of State-owned wells SOH-1, SOH-2, SOH-4 and True/Mid-Pacific KA1-1, and cleanup and restoration of drill pads.

Issues: 1) EPA has expressed concern (1/29/98 letter) regarding plugging and abandoning wells, and possible endangerment to underground sources of drinking water (see Attachment 2). DLNR responded with a 3/16/98 summary of well status (see Attachment 3). Additional correspondence related to the status of these wells is also attached (see Attachment 4).

- 2) See Item E with regard to plugging and abandonment of the True/Mid-Pacific KA1-1 well.
- 3) Should monitoring be done to “assure and prolong casing integrity, and preclude any blowout consequent to a casing failure due to corrosion”? “Wells that have been tested or have produced high temperature fluids, and then are shut-in for periods of time, particularly require regular and accurate monitoring of casing conditions”, Hawaii Geothermal Blowout Prevention Manual, January 1994.

Requirements: Need to develop technical plugging and abandonment plans (PAP) for each well and prepare budget request for funding.

- Resolution Options:
- 1) Retain consultant to prepare plugging and abandonment construction documents. A preliminary plan has been prepared by GeothermEx, Inc. as part of an existing DBEDT Contract No. 39204 for SOH-1, SOH-2 and SOH-4. The SOH PAP should be reviewed and updated, as needed. The SOH PAP should also be prepared in accordance with DLNR bidding and construction requirements. A similar plan for KA1-1 needs to be prepared. Mr. Nakano is in contact with DBEDT regarding possible contract/funding assistance (available DBEDT funds, however, will lapse June 1999). Preparation of PAP and the required 5-Year Geothermal Resource Subzone Review (Item C) are being discussed with DBEDT and their consultant.
  - 2) BLNR executive session should be held to discuss funding requirements and potential liability associated with these wells.
  - 3) Develop plugging and abandonment schedule based upon available funding. Each well may require an average of three (3) months to complete plugging operations.
  - 4) Discussions should be held with PGV to see if they have any interest in acquiring one or more of the SOH wells for future monitoring purposes.

Cost Estimate: An estimated cost of \$300,000-\$500,000 per well will be required to plug and abandon the (3) SOH wells. The plugging cost for the KA1-1 well may be on the order of \$1,000,000 (or more). Total consultant cost of about \$20,000 will be needed for preparation of PAP and construction documents for all wells.

Task Duration: 3-6 months for PAP and construction document preparation

### C. 5-Year Review of Existing Geothermal Resource Subzones

Priority: High. Last review conducted in 1992. (Per DLNR Administrative Rules, Chapter 13-184, HAR, review required every 5 years beginning in 1988).

Scope: Review and revise statewide geothermal resource assessment, as needed. As part of the periodic review, should consider analysis of existing data (some of which may be proprietary) to evaluate and model the reservoir behavior. As assessment should be made regarding the “sustainable yield” of the geothermal reservoir to protect and insure maximum utilization of the resource.

Requirements: BLNR to revise/update per Chapter 13-184, HAR . Need to verify reporting requirements.

Resolution Options: Retain geothermal consultant (see Item B) to perform review. (Note: Previous subzone assessments were conducted by an ad hoc Geotechnical Advisory

Committee (GEOTAC). Reconvening the GEOTAC is not required for the 5-year review. Additionally, local geothermal expertise may not be available at this time.)

Cost Estimate: \$20,000 if consultant retained

Task Duration: 3 months

D. Compliance Review of Geothermal Resource Mining Leases (GRML)

Priority: High

Scope: Review the following for compliance with lease provisions:

- 1) Mining Lease S-4602 (Natural Energy Laboratory of Hawaii Authority, see Item F). Leased area would be removed from inclusion in the subzone area upon termination of mining lease.
- 2) GRML R-1 (Bishop Estate, subleased to PGV). Canceled by PGV in 1996.
- 3) GRML R-2 (PGV, see Items G, K and L).
- 4) GRML R-3 (Barnwell Industries, Inc.)
  - a) Time period for the lease has expired. Status of lease rent payments needs review (Fiscal indicates lease rent being paid until 8/31/2046).
  - b) Awaiting response regarding remedial work to the existing wellpads and well (see Attachment 5). Barnwell Industries is required to properly plug and abandon well Lanipuna #6. Lanipuna #2 was not drilled and only a well cellar was built. If there are no plans for further use, the owner is required to remove the well cellar and restore the disturbed areas as near as possible to natural conditions.
  - c) Leased area would be removed from inclusion in the subzone area upon termination of the mining lease (see Item G).
- 5) GRML R-4 (PGV) Canceled by PGV in 1995.
- 6) GRML R-5 (True/Mid-Pacific or State, see Item E). Status of lease and lease rent payments needs review (Fiscal indicates lease rent being paid).

Issue: Several leases may need to be rescinded, affecting existing subzone boundaries. Notification of several hundred landowners may be required.

Resolution Option: Research status of leases and actions required for compliance, including that for cancellation. Landowner notification (possibly through the Bureau of Conveyances) may be required to disclose change in subzone status (e.g., parcel no longer being within a designated geothermal resource subzone).

Task Duration: 6 months

E. Finalize Disposition of Mining Lease GRML R-5

Priority: High

Scope: Finalize disposition of lease which was conveyed back to the State by lessee Campbell Estate.

Requirements: Need to comply with conditions set forth in BLNR's Decision and Order (D/O) regarding road maintenance, weed control, etc.

Issues: 1) How does the plugging and abandonment of the KA1-1 well affect the lease?

2) How did the transfer of the well to DLNR affect the lease? Need to evaluate legal issues and liabilities related to the conveyance of the mining lease back to the State (conveyance needs verification, see Item D6). How does the transfer affect the D/O conditions? Per Fiscal, annual lease rent continues to be paid by the Estate of James Campbell.

3) Is the State currently in compliance with its own mining lease provisions?

Resolution Options:

- 1) Need to review lease and D/O provisions, and identify issues involving final lease disposition. Identify (with AG consultation) legal requirements and liabilities, and funding requirements for resolution of these issues.
- 2) Pursue transfer/sale of the lease to a potential developer for power generation.

Task Duration: 12-18 months (depends on schedule for plugging and abandonment of KA1-1)

F. HGP-A Well and Facilities, Natural Energy Laboratory of Hawaii Authority (NELHA)

Priority: High

Scope: Determine impact of plugging and abandonment of HGP-A well to the continuance of Mining Lease S-4602. An extension of the Plug and Abandonment Permit will expire on 9/2/99. Plugging and abandonment work began 4/15/99 with completion anticipated by mid-May 1999. Cleanup of the facilities is NELHA's responsibility.

Issue: Original purpose and terms of the lease will cease once plugging and abandonment is complete. Continued operation of the facility and authorization under the current mining lease may be in question. If the lease is terminated, the leased area will be removed from the subzone area. Adjacent landowner notification may be required.

Resolution Options: Terminate current geothermal lease and issue another type of State lease. Initiate discussions with NELHA. Consult with AG.

Task Duration: 3-6 months

G. "Grandfathered" Subzones

Priority: High

Scope: Determine the impact of terminating leases which were "grandfathered" as geothermal resource subzones. Modifications to subzone boundaries require notification of surrounding property owners.

Issues: S-4602, GRML R-2 and GRML R-3 were leases grandfathered by the Legislature as subzones only for the duration of the leases (Section 205-5.1, HRS). Need to determine whether there are any notification or other subzone designation administrative requirements when grandfathered subzones are removed from existing subzone areas due to the termination of mining leases. See Item I.

Resolution Option: Further research. Consult with AG.

Task Duration: 3 months

H. Management of Geothermal Program

Priority: High

Scope: Establish clearer direction and communication regarding program objectives and requirements. Minimize/eliminate duplication of effort (i.e., should correspondence be issued directly from HDLO or from Honolulu?).

Requirements: Clarification of DLNR program objectives related to geothermal development activities. Need to discuss reestablishment of the mineral resources program LNR 403(?), staffing resources, and funding requirements. Need to establish clearer designation of duties and responsibilities, and chain of command.

Resolution Options: 1) Meeting to discuss program management, direction and requirements with everyone involved in the program present.

2) Prepare an internal action plan and budget for phased implementation which identifies and prioritizes outstanding issues requiring departmental action.

I. Revisions to DLNR Administrative Rules, Chapters 13-183 and 13-184, HAR

Priority: Medium

Scope: Complete revisions to rules. Statutory changes date back 5 years or longer. (Chapter 13-185, HAR, "Rules of Practice and Procedure for Geothermal and Cable System Development Permitting" which established guidelines and procedures for consolidated geothermal and cable system development permitting does not require revision).

Requirements: Schedule statewide public hearings on proposed rule amendments.

Resolution Options: Retain consultant to complete preparation of draft rule amendments.

Issues: 1) Royalties cannot be calculated directly from existing mining lease provisions or the current resource valuation method set forth in DLNR Administrative Rules Chapter 13-183, HAR. Current royalty calculation methodology used for PGV royalty payments needs to be incorporated in rules (see Item K).

2) Clarify provisions regarding "grandfathered" and "undesignation" of subzones (see Items G and J) within administrative rules.

Cost Estimate: Say \$10,000 if consultant retained?

Task Duration: 3 months to revise rules, 12-18 months to promulgate rules.

J. Pending Landowner Requests for Geothermal Resource Subzone Withdrawal

Priority: Medium

Scope: Evaluation and resolution of pending landowner requests for subzone withdrawal filed in 19??, including map preparation and compilation of withdrawal information.

Requirements: Withdrawal requirements and procedures shall be in accordance with DLNR Administrative Rules, Chapter 13-184, HAR. Need to determine administrative process for withdrawal from subzone.

Issues: 1) The requests were made approximately 10 years ago. Sixty Four (64) applied to

have lands withdrawn from the subzone, some of which were part of an existing mining lease.

- 2) With the cancellation of certain mining leases (see Item D), some parcels being requested for withdrawal may automatically be withdrawn from the subzone.
- 3) Review previous AG's opinion regarding the need for a contested case hearing for the withdrawal of parcels out of a subzone (see Item G).

Resolution Option: Meet with AG to clarify procedure for "un-designating" subzones.

Task Duration: 6 months

K. Puna Geothermal Venture (PGV) Royalties

Priority: Medium

Scope: Continue review of annual audits of PGV's monthly royalty payments.

Issue: BLNR approved submittal to "carry out annual audits of PGV's financial documents to verify the accuracy and legitimacy of cost deductions". Independent annual audits performed by PGV are being reviewed by DLNR (see page 5 of Attachment 6). Need to clarify DLNR's annual audit requirements, if any.

Resolution Option: Meeting with AG and involved parties.

L. Documents, Files and Correspondence

Priority: Medium

Scope: Establish improved correspondence routing procedure. Review and organize files and pertinent documents.

- Issues:
- 1) Contested case hearing and other program-related information (15 boxes) needs to be sorted and incorporated into existing files.
  - 2) Need to review, organize and update existing mining lease files and records. In reviewing documents in vault for GRML R-2 and GRML R-4, several inconsistencies were noted:
    - a) Designation of lessee for GRML R-2 should be revised to reflect PGV (not Kapoho Land Partnership) per consent to sublease dated 8/27/82. Fiscal account references Kapoho Land Partnership and should also be updated.
    - b) Royalty payment receipts should be filed in GRML R-2 folder (earlier filing errors have been corrected).
  - 3) Need to improve correspondence routing procedure.

Requirements: Correct designation of sub-lessee for GRML R-2. Set up routing and filing protocol for the geothermal-related information, payments, etc.

Task Duration: 3 months to organize and establish acceptable filing procedures

M. Hawaii Geothermal Blowout Prevention Manual Circular C-125

Scope: Review and revise manual within 5 years (of January 1994).

Resolution Option: Retain consultant.

Cost Estimate: To be determined

Task Duration: 3 months

N. Annual Reports to the Legislature

Requirement: Submission of annual reports to the Legislature in accordance with Chapter 196D-11, HRS, and DLNR Administrative Rules Chapter 13-185-8, HAR, regarding the status of consolidated geothermal and cable system development. Annual reports are being submitted to the Legislature.

Issue: Need to discuss annual reporting requirement and continued applicability of statute since no large-scale project currently exists.

O. Interagency Communication/Coordination With Respect to the PGV Project

Scope: Reestablish and maintain communication/coordination with DOH and the County of Hawaii regarding regulation of ongoing geothermal development including future well drilling and expansion of facilities at PGV which are currently regulated under DLNR and County of Hawaii permits (see Attachment 7).

- 1) County of Hawaii
  - a) Geothermal Resource Permit (Agricultural, Urban and Rural lands)
  - b) Grubbing and Grading Permits, etc.
- 2) Board of Land and Natural Resources
  - a) Geothermal Resource Subzones
  - b) Geothermal Resource Mining Leases
  - c) Plan of Operations
  - d) Conservation District Use Permit
- 3) Department of Land and Natural Resources Administrative Permits
  - a) Exploration
  - b) Well Drilling
  - c) Well Modifications
  - d) Well Abandonment
  - e) Historic Site Review
- 4) Department of Health
  - a) Authority to Construct
  - b) Permit to Operate
  - c) Ambient Air Standards  
(The foregoing three existing permits have been superceded by a Non-Covered Source Permit that is currently being reviewed. Permit to be issued shortly.)
  - d) Underground Injection Con.
  - e) Noise Standards (Application of statewide noise level standards or specific Geothermal Resource Permit conditions).

At the appropriate time, the Chairperson and BLNR should be briefed on the foregoing, especially with regard to legal and liability issues, and required funding.

NH:ek

Attachments

c: Dede Mamiya  
Andrew Monden  
Alyson Yim  
Eric Tanaka

HDLO  
Dean Nakano, CWRM