

June 21, 1985

MEMORANDUM FOR THE RECORD

FROM: Dean Nakano

SUBJECT: Phone Conversation with Don Mitchell Concerning
Ancient Hawaiian Use of Geothermal Energy

During my literature search for information concerning ancient Hawaiian use of geothermal energy, I was advised by the research library of the Bishop Museum to contact Mr. Don Mitchell.

Mr. Mitchell is well read in Hawaiian literature and legend and has authored numerous publications concerning Hawaiian history. He recalls that there may have been some reference to the use of steam emanating from fissures to cook tree ferns for use as fodder in raising pigs. Mr. Mitchell suggested reading "Native Planters in Old Hawaii" by Handy and Handy, to verify his claim. Other than this, he knows of no examples or reference to using geothermal energy for daily activities such as the Maoris do in New Zealand.

Mr. Mitchell does not believe that ancient Hawaiian beliefs were specifically against the use of steam, but that it is only a recent interpretation of Hawaii theology. He believes that steam is not referred to in early discussions of Pele but that lava and volcanic eruptions are more closely associated to Pele.

Mr. Mitchell suggested that I contact Dr. Abraham Piianaia and Dr. Pauline King of the University of Hawaii, Hawaiian Studies Program for further information.



DEAN NAKANO

DN:ko

RECEIVED



SUSUMU ONO, CHAIRPERSON
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

85 APR 15 9:52 STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

DIV. OF WATER &
LAND DEVELOPMENT

P. O. BOX 621
HONOLULU, HAWAII 96809

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

APR 15 1985

Mr. Steven A. Malnar
President
Sam Oil, Inc.
P. O. Box 1030
Roosevelt, Utah 84066

Dear Mr. Malnar:

Thank you for your March 27, 1985 letter expressing interest in obtaining an oil and gas and thermal lease on some property in the Hawaiian Islands.

We doubt very much if there are any deposits of oil or natural gas on any of the islands in the State of Hawaii. However, if you still desire to apply for lease of such mineral rights, please indicate or delineate on a map the specific location of your application and the owner of the land. The location is important because the permit process requirements will depend on the land use zoning of the property involved. Application without specific site will not be processed.

For lease of geothermal resources, please refer to the enclosed Rules on Leasing and Drilling of Geothermal Resources. The designated Geothermal Resources Subzones are shown on the also enclosed maps of Kilauea Lower East Rift, Kamaili Section and Kapoho Section, island of Hawaii and Haleakala Southwest Rift, island of Maui.

Also enclosed for your information is a copy of Chapter 182, Hawaii Revised Statutes pertaining to Reservation and Disposition of Government Mineral Rights.

Should you require additional information, please feel free to contact our Land Management Division at Room 220, Kalanimoku Building, 1151 Punchbowl Street, Honolulu, Hawaii 95813.

Very truly yours,

SUSUMU ONO
Chairperson of the Board

Enclosure

cc: DOWALD
All District Land Agents

March 25, 1985

MEMORANDUM FOR THE RECORD

FROM: Dean Nakano

SUBJECT: Public Information and Participation Meeting, Pahala, Hawaii

On March 14, 1985, a public information meeting on the proposed Kilauea Southwest Rift geothermal resource subzone was held at Kau High School Cafeteria. The meeting was called to order at 7:10 p.m. by Manabu Tagomori, Manager/Chief Engineer of the Division of Water and Land Development. In attendance were twenty people whose names are listed on the attached sign-in sheet.

Manabu Tagomori presented background information on the geothermal subzoning process and briefly discussed the proposed geothermal resource subzone of the Kilauea Southwest Rift and explained about the ongoing impact analyses.

Don Thomas of the Hawaii Institute of Geophysics described the resource assessment process and defined the resource probability lines and type of data utilized by the Geothermal Resource Technical Committee.

Joe Kubacki presented data on vegetation found in the proposed resource subzone and reported on the impacts of geologic hazards such as earthquakes, lava flows and tsunamis.

Mr. Tagomori in summarizing the presentation, stated that this meeting was the first of several meetings and public hearings that will be held before any recommendations will be proposed to the Board of Land and Natural Resources.

A question and answer session was conducted and the comments received are summarized below:

- o More information should be presented on the air quality impacts and how they will be controlled.
- o Meteorological studies are needed for the Kau area, since residents are often impacted by the eruptions at Puu O'o.
- o Information is needed on the rights of landowners contained within the geothermal resource subzone.
- o No discussion of mega-watt capacity or criteria used for designation of such a large area of land.
- o No justification for subzoning Pahala when lower Puna can supply all the projected power requirements for the island of Hawaii.
- o Geothermal energy is not cost-effective and more research should be conducted in the areas of solar, wind, bio-energy and hydro-electric resources.

- o With respect to the areas potential for production, why was the Kilauea Southwest Rift, with a 25% probability, proposed for subzoning.
- o The proposed 1000-foot setback between the subzone and the National Park, seems inadequate when compared to the 2000-foot buffer that was proposed for the Kahaualea subzone.
- o Greater emphasis seems to be given to developer interest over the other assessment criteria in subzoning the Kilauea Southwest Rift.
- o The proposed subzone is too close to Pahala and the surrounding community.
- o There has been no study done on Hawaiian religion or any effort made to consult practitioners of this religion who believe in the Goddess Pele.
- o Geothermal development is sacrilegious, and insults the Hawaiian people and their beliefs.
- o There is no discussion on how or where the electricity will be used should geothermal development occur in Pahala.

Mr. Tagomori concluded the meeting at 9:30 p.m. and thanked all of the people who attended.



DEAN NAKANO

PAHALA MTG @ KAU HIGH SCHOOL

3/14/85 @ 7:00 pm

CHECK
YOU WA
Geotherm
Booklet

SIGN IN SHEET
(GENERAL ATTENDANCE)

NAME

ORGANIZATION

ADDRESS

Glen Shura
Jan W. Bowman

Kau Agribusiness

Kau Agribusiness

Mae E. Mull

P.O. Box 275, VOLCANO 96785 ✓

Wallace L. Doherty

P.O. Box 726, Pahala, HI ^(Kau Agribusiness) 96777 ✓

Yvonne Jensen

P.O. Box 30 Volcano 96785

Jehua Lopez

P.O. Box 590 Mountain View 96771

Tele Hanoo

P.O. Box 472 Naalehu HI 96772 ✓

AHIGA

~~332~~ LU HAU PI. HI 96720 ✓

SAMUEL KALUNA JR.

P.O. Box 172 PAHALA, KAU, 96777 ✓

LEROY UYEHARA

B Hawaiian Investment Co.

P.O. Box 85

Pahala, HI 96777 ✓

Linda Chenoweth

P.O. Box 655

Naalehu HI 96772 ✓

Linda Lyzely

~~Naalehu HI 96772~~

Lydia K. Kei

AIL 677 Pahala HI 96777 ✓

Charles W. Smith

4476 Kolohele, Hanalei, HI 96816

Jim MAKAWEO

P.O. Box 61, PAHOA, HI 96778 ✓

Cecil L. Smith

Dallas, TX

Alan G. Kawada

True Geothermal Energy Co Hn.

SAMUEL C. KEOLA JR

CAMPBELL EST. HON.

Palepu ulu

P.O. Box 469, NAALEHU

March 25, 1985

MEMORANDUM FOR THE RECORD

FROM: Dean Nakano

SUBJECT: Puna Community Forum Meeting

On March 13, 1985, a Puna Community Forum meeting was held at the Keaau Community Center on the island of Hawaii. At 7:30 p.m., Robert Murray, acting as moderator for the meeting, introduced the following speakers on the Forum:

Manabu Tagomori - DOWALD
Joseph Kubacki - DOWALD
Don Thomas - HIG
Diane Ley - Puna Geothermal Committee
Jim Jacobi - U.S. Fish & Wildlife Service
Hannah Springer - Student at UII-Hilo

Mr. Tagomori presented background information on the existing and proposed geothermal resource subzones. Mr. Tagomori also explained the BLNR's Decision and Order on the proposed subzone at Kahaualea, Hawaii and briefly discussed the requested land exchange between the State of Hawaii and Campbell Estate.

Dr. Thomas described the resource probability lines displayed on the maps presented at the Forum and explained the type of data utilized by the Geothermal Resource Technical Committee.

Mr. Kubacki presented information on geologic hazards related to lava flows, ground cracking, earthquakes and tsunamis. In addition, Mr. Kubacki displayed some of the data being utilized in the environmental impact analysis.

Diane Ley representing the Puna Geothermal Committee stated that the recent BLNR Decision and Order was a positive step toward recognizing the biological importance of Kahaualea and the close proximity to the Hawaii Volcanoes National Park. Ms. Ley further stated that the committee still continues to view geothermal development as an industrial activity not consistent with conservation land principles. She also emphasized the need for additional baseline studies and monitoring systems and questioned the need for geothermal development over and above the base load requirements of the island of Hawaii.

Jim Jacobi of the U.S. Fish and Wildlife Service presented data on the existing flora and fauna of the Kilauea Middle East Rift Zone. A series of slides were shown pertaining to the birds and types of vegetation found in recent surveys. Mr. Jacobi identified rare or endangered birds and plants and briefly discussed their distribution pattern that resulted from the survey. He further stated that the northern portion of the proposed geothermal resource subzone is open forest canopy type vegetation containing approximately 25% introduced species such as strawberry guava.

Hannah Springer, a UH-Hilo geography and Hawaiian studies student spoke about Hawaiian culture as it pertains to geothermal development. Ms. Springer expressed her concerns about the encroachment of development activities upon sacred grounds considered to be the domain of the gods. She also stated that the proposed geothermal land exchange is a positive sign that the State is incorporating more than just economic factors in its assessment and subzoning of Kahaualea, but that advocacy of the exchange is premature until further impact analyses are conducted.

Upon the completion of all presentations, a question and answer session was held and the comments received are summarized below:

- o There has been no information on how the proposed air quality standards by the Dept. of Health will be enforced.
- o No report has been made to the public as to how the lands proposed for exchange will be valued and by whom.
- o Public participation has not been solicited with regard to input into the proposed land exchange.
- o The residents of Kalapana are concerned about potential impacts to their community and would like additional meetings to be held in their area.
- o More information should be made available as to the rights of landowners in the subzone and who actually owns the geothermal resource mineral rights.
- o There should be no geothermal development over and above the needs of the island of Hawaii (25 MW).
- o Greater emphasis is being given to developer interests than to public input from concerned citizens.

Mr. Murray thanked the Forum participants and the meeting was concluded at 10:00 p.m.


DEAN NAKANO

STATE OF HAWAII
DEPARTMENT OF LAND & NATURAL RESOURCES
DIVISION OF WATER & LAND DEVELOPMENT
P. O. BOX 373
HONOLULU, HAWAII 96809



SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

OF HAWAII
AND NATURAL RESOURCES
AND LAND DEVELOPMENT

BOX 373
HAWAII 96809

21, 1985

TO:
Ms. Renee Hall
State of Alaska
Dept. of Natural Resources
Division of Oil and Gas
Pouch 7-034
Anchorage, Alaska 99510

Ms. Renee Hall
State of Alaska
Dept. of Natural Resources
Division of Oil and Gas
Pouch 7-034
Anchorage, Alaska 99510

Dear Ms. Hall:

I am pleased to forward you a copy of "A Report on Geothermal Resource Subzones for Designation by the Board of Land and Natural Resources", prepared by the State of Hawaii, Department of Land and Natural Resources. Enclosed also, is a copy of the Department's Administrative Rules, Title 13, Subtitle 7, Chapter 184, entitled "Designation and Regulation of Geothermal Resource Subzones".

I hope you will find this information useful in the development of your geothermal guidelines and policies. Should you have any questions, please feel free to contact me at the Division of Water and Land Development at (808) 548-7539.

Very truly yours,

MANABU TAGOMORI
Manager-Chief Engineer

DN:ko
Enc.

From Senator;
RICHARD MATSUURA
ROOM 231
STATE CAPITOL

_____ . B. NO. _____

A BILL FOR AN ACT

RELATING TO GEOTHERMAL SUBZONES.

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

1 SECTION 1. Section 205-5.2, Hawaii Revised Statutes, is
2 amended by amending subsection (d) to read:

3 "(d) After the board has completed a county-by-county
4 assessment of all areas with geothermal potential or after any
5 subsequent update or review, the board shall compare all areas
6 showing geothermal potential within each county, and shall
7 propose areas for potential designation as geothermal resource
8 subzones based upon a preliminary finding that the areas are
9 those sites which best demonstrate an acceptable balance
10 between the factors set forth in subsection (b). Once such
11 a proposal is made, the board shall conduct public hearings
12 pursuant to this subsection, [notwithstanding] without regard
13 to Chapter 91, relating to contested case hearings, or
14 any contrary provision related to public hearing procedures.

15 (1) Hearings shall be held at locations which are
16 in close proximity to those areas proposed for
17 designation. A public notice of hearing, including
18 a description of the proposed areas, an invitation

NOV 19 1984

Ms. Katherine Pommerenk
P. O. Box 1907
Pahoa, Hawaii 96778

Dear Ms. Pommerenk:

On September 28, 1984 we received your letter regarding the proposed designation of the Kilauea lower east rift geothermal subzone. You requested that your land be withdrawn from the proposed subzone.

The geothermal subzone designation process is designed to identify broad areas of land where potential geothermal development may be considered. The enabling legislation, which provided the framework for the designation process, does not provide for the type of spot zoning you requested. Therefore, it would be inappropriate to honor your request that your land be removed from the proposed Kilauea lower east rift subzone.

However, as a surface landowner, no geothermal development can occur on your land without your consent. Consequently, the designation will not permit any activity on your land that you do not expressly approve.

In addition, any request to develop geothermal facilities in the proposed Kilauea lower east rift subzone must receive approval from Hawaii County since this entire area is zoned agricultural. The County is currently drafting proposed rules pertaining to Geothermal Resource Permits. Accordingly, any decisions regarding development of this area must go through the County. You may wish to contact the County Planning Office if you have any questions or comments regarding these permits.

Thank you for your interest in this matter.

Very truly yours,

SUSUMU ONO
Chairperson of the Board

RTC:JK:jes

OCT 24 1984

MEMORANDUM

TO: Mr. Eddie Ansai, Land Agent
DLNR

FROM: Susumu Ono

SUBJECT: Geothermal Technical Reports,
Circulars C-103 to C-108

I am pleased to enclose six technical reports on geothermal resource subzones for your information. Publication of these reports completes the staff work on the initial statewide assessment of geothermal resources and the related impact analysis. The reports are:

Statewide Geothermal Resource Assessment, Circular C-103.

Social Impact Analysis of Potential Geothermal Resource Areas, Circular C-104.

Economic Impact Analysis of Potential Geothermal Resource Areas, Circular C-105.

Environmental Impact Analysis of Potential Geothermal Resource Areas, Circular C-106.

Geologic Hazards Impact Analysis of Potential Geothermal Resource Areas, Circular C-107.

Geothermal Technology, Circular C-108.

Should you have any questions on the publications, please contact Mr. Robert T. Chuck of the Division of Water and Land Development, phone 548-7539.

SUSUMU ONO
Chairperson of the Board

Encl.

Mr. W.R. Craddick, Vice President
Water Resources International, Inc.
2828 Paa Street, Suite 2085
Honolulu, Hawaii 96819

Dear Mr. Craddick:

With reference to a copy of your letter to the County of Hawaii Planning Department dated October 2, 1984, the Department of Land and Natural Resources has been advised that all drilling and testing operations at Lanipuna Well No. 6 have ended effective October 15, 1984. We would like to request the submittal of the following as soon as possible after the completion of the drilling work:

1. Drilling log and core report. The drilling log and core report shall show the lithologic characteristics and depths of formations encountered, the depths and temperatures of ground water-bearing and geothermal resources-bearing strata, and the temperatures, chemical compositions, and other chemical and physical characteristics of fluids encountered from time to time, so far as ascertained. The report shall show the depth, lithologic character and fluid content of cores obtained, so far as determined.
2. Well history report. The well history report shall describe in detail the chronological order on a daily basis all significant operations carried out and equipment used and shall be submitted upon completion of drilling, testing, and abandonment of a well.
3. Well summary report. The well summary report shall show data pertinent to the condition of a well at the time of completion of the work.

Please notify us, in writing, if you plan to do any work or conduct tests at the Lanipuna No. 6 site in the future. Thank you very much for your cooperation.

Very truly yours,

SUSUMU ONO
Chairperson of the Board

RTC:DH:ko

November 7, 1984


MEMORANDUM FOR THE RECORD

FROM: Dean Nakano

SUBJECT: Status Report on Lanipuna Well No. 6

With reference to a confidential letter from Water Resources International to Mr. Sidney Fuke, dated October 2, 1984, DOWALD has been advised that all drilling and testing operations at Lanipuna Well No. 6 have ended effective October 15, 1984. In addition, all environmental monitoring has been discontinued as of October 31, 1984.

DOWALD has notified Mr. W.R. Craddick of Water Resources International, requesting the timely submittal of all records and reports for Lanipuna Well No. 6 as required under Chapter 183, Rules on Leasing and Drilling of Geothermal Resources.



DEAN NAKANO

DN:ko

STATUS OF GEOTHERMAL ACTIVITIES
OF THE
DEPARTMENT OF LAND AND NATURAL RESOURCES

I. Designation of Geothermal Resource Subzones

- The Board of Land and Natural Resources will consider designating three areas in the State as geothermal resource subzones on November 16, 1984 (Friday). The areas are:

- * Kapoho Section, Lower Kilauea Rift Zone, Hawaii.
- * Kamaili Section, Lower Kilauea Rift Zone, Hawaii.
- * Haleakala Southwest Rift Zone, Maui.

(See attached maps)

- The BLNR will conduct a contested case hearing for the Upper Kilauea Rift Zone (Kahaualea), Hawaii, on December 12-13, 1984 in Hilo. The Board may render a decision on Kahaualea on December 28, 1984 to meet the December 31, 1984 requirement of Act 151, SLH 1984.
- The Department's staff will soon hold public meetings in Pahala, Hawaii, to consider the Kilauea Southwest Rift Zone as a candidate for geothermal resource subzone designation. Mr. Cecil Smith of Dallas, Texas, is strongly urging the State to consider the area.

II. Campbell Estate's Kahaualea Exploration Activities

The BLNR issued a CDUA permit to True-Mid Pacific for about 800 acres of Campbell Estate owned lands at Kahaualea near Volcanoes National Park. The developer submitted a development plan to DLNR and the Board is expected to take action on the plan soon to allow initial drilling activities to begin by mid-1985.

III. State Geothermal Resource Mining Leases

- R-1, issued to Bishop Estate, subleased to Puna Geothermal Venture (Thermal Power Co., Dillingham, Amfac)

Location: Puna, Hawaii
Area: 3487 acres
Land ownership: Bishop Estate
Effective date: March 1, 1981
Term: 10 years primary, 65 years maximum
No drilling to date
Mineral rights reserved to State

- R-2, issued to Kapoho Land Partnership, subleased to Puna Geothermal Venture.

Location: Puna, Hawaii
Area: 816 acres
Land ownership: Kapoho Land and Development Co.
Effective date: March 1, 1981
Term: 10 years primary, 65 years maximum
Wells drilled to date: Kapoho State No. 1
Kapoho State No. 2
Mineral rights reserved to State

- R-3, issued to Barnwell Geothermal Corp.

Location: Puna, Hawaii
Area: 769 acres
Land ownership: J.T. Trading Co. and Auto Imports
of Hawaii, Inc.
Effective date: September 1, 1981
Term: 10 years primary, 65 years maximum
Wells drilled to date: Lanipuna No. 1
Lanipuna No. 6
Mineral rights reserved with no reservation on a few parcels

- R-4 issued to Puna Geothermal Venture

Location: Puna, Hawaii
Area: 279 acres
Land ownership: Various
Effective date: September 1, 1982
Term: 10 years primary, 65 years maximum
No drilling to date
Mineral rights reserved to State

IV. Exploratory Wells Drilled to Date

- Ashida No. 1

Drilled in 1980
Barnwell Geothermal Corp.
Well abandoned

- Lanipuna No. 1

Drilled in 1982
Barnwell Geothermal Corp.
Well abandoned

- Kapoho State No. 1

Drilled in 1981
Puna Geothermal Venture
Well flow tested and capped

- Kapoho State No. 2
 - Drilled in 1982
 - Puna Geothermal Venture
 - Well flow tested and capped
- Lanipuna No. 6
 - Drilled in 1984
 - Barnwell Geothermal Corp.
 - Well abandoned in October 1984
- Kapoho No. 1-A
 - Plan to begin drilling in early 1985
 - Puna Geothermal Venture

V. Demonstration HGP-A Well

- Production of 3 megawatts
- Royalties (average \$10,000/mo.) waived by BLNR

VI. Pending Litigation

- Kahaualea CDUA permit to Campbell Estate

October 24, 1984

Memorandum for the Record

From: Dean Nakano

Subject: Summary of comments concerning the
Designation of Geothermal Resource Subzones

The following comments were summarized from testimony and letters received since the recent Public Hearings on the Designation of Geothermal Resource Subzones:

- During the assessment process, no biologists or members of the medical profession were consulted.
- Potential health hazards and adverse effects resulting from geothermal emissions such as air, noise and water catchment pollution.
- Greater emphasis given to developer interest over the other assessment criteria.
- Geothermal energy will not be cost-effective and more research should be conducted in the areas of solar, wind, bio-energy and hydro-electric resources.
- There should be no development of geothermal energy over and above the needs of the island of Hawaii (25 MW) until the undersea transmission cable becomes economically feasible.
- With respect to the areas' potential for production, why was the Haleakala Southwest Rift, with a 25% or less probability, proposed for subzoning and not the Kilauea Southwest Rift which has been estimated at having a 90% or greater probability?
- Since mineral rights on some private lands are questionable, geothermal development should be restricted to State owned lands that would guarantee mineral rights to the State.
- There was no discussion made regarding a possible land exchange between Kahaualea (Campbell Estate) and the Wao Kele O'Puna Forest Reserve (State).
- The potential destruction of prime native forests and impacts on endangered flora and fauna in Kahaualea.
- No justification for subzoning Kahaualea, when lower Puna can supply all the projected power requirements for the island of Hawaii.

- Kahaualea was proposed as a subzone without meeting a balance of the criteria set forth in Act 296, such as the high risk of volcanic activity and incompatibility with conservation land.
- No discussion of mega watt capacity for the 20,914 acres of proposed subzones.
- Inadequate criteria assessment; in that a 500 mega watt or greater development senario was not considered during the evaluation process.
- The 2000-foot buffer zone should be reduced or eliminated for the Kilauea Upper East Rift. It was recommended that surface activity be regulated during the permitting process, where the Board or County agency can require a 2000-foot setback from the National Park and Puna Natural Area Reserve boundaries.
- The proposed 2000-foot buffer zone or setback should restrict only surface activity or development and not subsurface directional drilling. This was recommended so that drilling for geothermal resources in higher potential areas can be conducted beyond the proposed buffer zone up to 100 feet from the outer boundary of the parcel of land on which the well is situated.
- Recommendation that the Kilauea Southwest Rift in the Kau District be designated as a Geothermal Resource Subzone due to the the high probability of a resource and the existing and projected demands for electrical energy in the area.
- Recommendation that all the Bishop Estate R-1 mining lease be included in the Kamaili Section subzone designation based on geological and geophysical data that indicate the probability of a high temperature resource.
- Modification of the proposed Haleakala Southwest Rift subzone boundaries due to the close proximity of the Makena resort area.



DEAN NAKANO

April 13, 1984

MEMORANDUM FOR THE RECORD

FROM: Dan Lum

SUBJECT: Records and Report Requirements of Lanipuna #1

I. Authority from Geothermal Drilling Regulations

§13-183-72. The temperature of the return drilling mud must be logged continuously.

§13-183-73. Induction electrical log is required.

§13-183-73. Well tests may be required for blow-out prevention valve and casing pressure test (after casing cementing), cement bond logging, directional drilling log.

§13-183-84. Well records required include lithologic log, water-bearing and geothermal heat-bearing formations (this information required to be kept in local office and subject to DLNR inspection during business hours).

§13-183-85. Reports to be filed (forms to be provided by DLNR) 6 months after well completion (these reports become public property):

- o Drilling log and core report, i.e. driller's logs.
- o Well History report - daily chronology of drilling operation activities.
- o Well Summary report - condition of well at completion.

II. Authority from Lease R-3

Page 38. Within 30 days of completion (of the records), lessee agrees to supply to lessor "all physical and factual exploration results, logs, surveys and other data resulting from operations under the lease."


DANIEL LUM

October 24, 1984

MEMORANDUM FOR THE RECORD

FROM: Dean Nakano

SUBJECT: List of Persons and Organizations who have commented on the Designation of Geothermal Resource Subzones

Listed below are the proponents and opponents who provided written or oral statements at the recent public hearings, or through subsequent letters addressed to the Dept. of Land and Natural Resources.

- MAUI - Haleakala Southwest Rift.

Public Hearing held on September 10, 1984.

Proponents

- | | |
|----------------------|---|
| 1. Hannibal Tavares | - Mayor, County of Maui |
| 2. Goro Hokama | - Council Chairman |
| 3. Elizabeth Lee Liu | - Councilwoman |
| 4. Rep. Joseph Souki | - State House of Representatives |
| 5. Kent Keith | - Director, Dept. of Planning & Econ. Dev. |
| 6. D. G. Malcom | - Maui Economic Development Board |
| 7. Kipley Adams | - Alexander & Baldwin |
| 8. Patrick Takahashi | - Director, Hawaii Natural Energy Institute |
| 9. Hugo Huntzinger | - Haleakala National Park |
| 10. Arden Henderson | - President, Maui Electric Co. |
| 11. Wayne Hidani | - Maui Chamber of Commerce |
| 12. Lafayette Young | - Energy Research Group Inc. |
| 13. John Bose | - Sierra Club |
| 14. Rod Moss | - Mid-Pacific Geothermal Inc. |
| 15. H. Adalist | - Citizen |
| 16. Ed Rice | - Ulupalakua Ranch |
| 17. Ralph Hayashi | - Director, Dept. of Public Works, County of Maui |
| 18. Ned Goodness | - Citizen |

Opponents

- | | |
|-----------------------|-----------------------------------|
| 1. Eric Maehara | - Attorney for Seibu Hawaii, Inc. |
| 2. Dana N. Hall | - Citizen |
| 3. Jeff Munoz | - Citizen |
| 4. Walter Hellinger | - Citizen |
| 5. Dale Papazian | - Citizen |
| 6. John Papazian | - Citizen |
| 7. Lehua Altemus | - Citizen |
| 8. Walter Becker | - Citizen |
| 9. Shirley Shepherd | - Citizen |
| 10. John Daniels | - Citizen |
| 11. Carl Sheets | - Citizen |
| 12. Jennifer Vockrodt | - Citizen |

Opponents (cont'd)

- 13. Martha Vockrodt - Citizen
- 14. Euphence Vockrodt - Citizen
- 15. V. Kaai - Citizen
- 16. Bruce Bebe - Citizen

● HAWAII - Kilauea Lower and Upper East Rift.

Public Hearing held at Pahoia on September 11, 1984.

Proponents

- 1. George Pai - Attorney for Kamehameha Schools and Bishop Estate
- 2. Joe Iovenitti - Thermal Power Co.
- 3. Sydney Keliipuleole - Kamehameha Schools/Bishop Estate
- 4. Victor Becker - Citizen
- 5. Ralph Patterson - Puna Geothermal Venture
- 6. John Giesen - Nanawale and Puna Council Rep.
- 7. Norman Oss - Hawaii Electric Light Co., Inc.

Opponents

- 1. Lucrezia Oddie - Citizen
- 2. Barbara Bell - Puna Speaks
- 3. Greg Owen - Citizen
- 4. Aaron Israel - Kapoho Community Assoc.
- 5. Diana Holmes - Citizen

Public Hearing held at Hilo on September 12, 1984.

Proponents

- 1. Rep. Richard Matsuura - State House of Representatives
- 2. Elroy Osorio - Hawaii Island Chamber of Commerce
- 3. Vern Yamanaka - Barnwell Geothermal
- 4. Iemasa Kubo - Citizen
- 5. Charles Smith - International Air Service Co., Ltd.
- 6. William Knutson - Kona Coast Chamber of Commerce
- 7. H. Stuart Kearns, Jr. - Director, Dept. of Research & Development
- 8. Herman Ahyo - Citizen
- 9. David Blyth - Hawaii Island Contractors Ass'n
- 10. Francis Tsunozumi - Kanoelehua Industrial Area Ass'n
- 11. Joseph Andrews - Big Island Business Council
- 12. Dennis Aguiar - Hawaii Island Portuguese Chamber of Commerce
- 13. Harold Ashida - Japanese Chamber of Commerce and Industry of Hawaii

Proponents (cont'd)

- | | | |
|-----|--------------------|---|
| 14. | Rankin Curtis, Jr. | - Citizen |
| 15. | Fred Trotter | - Estate of James Campbell |
| 16. | Allan Kawada | - True Geothermal Energy Co. |
| 17. | Lynn Nishida | - Citizen |
| 18. | William Thompson | - Citizen |
| 19. | Henry Otani | - Citizen |
| 20. | Norman Oss | - Hawaii Electric Light Co., Inc. |
| 21. | George Jenkins | - Citizen (HELCO) |
| 22. | William Pendered | - Hawaii Island Board of Realtors |
| 23. | Michael White | - Hawaii Hotel Ass'n, Hawaii Chapter |
| 24. | Tomio Fujii | - Councilman, Hawaii County
Council |
| 25. | Richard West | - Citizen |
| 26. | Patrick Takahashi | - Hawaii Natural Energy Institute |
| 27. | Akisuke Kuwahara | - Citizen |
| 28. | William Sewake | - Manager, Hawaii County Dept. of
Water Supply |
| 29. | Donna Delorm | - Fern Forest Community Ass'n |
| 30. | Rev. Walter Kai | - Citizen |
| 31. | Victor Becker | - Citizen |
| 32. | Gary Yoshiyama | - HGEA, Hawaii Division |

Opponents

- | | | |
|----|-----------|-------------------------------|
| 1. | Nelson Ho | - Sierra Club, Hawaii Chapter |
|----|-----------|-------------------------------|

Public Hearing at Volcano on September 12, 1984.

Proponents

- | | | |
|----|----------------|------------------------------------|
| 1. | Donald Tong | - Planning Dept., County of Hawaii |
| 2. | Kid McCoy | - Citizen |
| 3. | O. K. Stender | - Estate of James Campbell |
| 4. | Rod Moss | - Mid-Pacific Geothermal Inc. |
| 5. | Victor Becker | - Citizen |
| 6. | John Bockrath | - Citizen |
| 7. | George Jenkins | - Citizen (HELCO) |

Opponents

- | | | |
|----|-----------------|---|
| 1. | Linda Lyerly | - Citizen |
| 2. | Mary Finley | - Citizen, Puna Geothermal Committee |
| 3. | Lani Stemmerman | - Citizen |
| 4. | Russ Apple | - Volcano Community Ass'n |
| 5. | Mark Collins | - Hawaiian Orchid Island Estates
Community Ass'n, Inc. |
| 6. | Don King | - Citizen |
| 7. | Rick Warshauer | - Citizen |
| 8. | Mae Mull | - Citizen |

- General correspondence concerning the proposed subzones received since the public hearings.

Proponents

- | | |
|--------------------|---|
| 1. Peter L'Orange | - Hawaii Leeward Planning Conference |
| 2. Sidney Fuke | - Director, Planning Dept., County of Hawaii |
| 3. Gail Jackson | - Citizen (Leilani Estates) |
| 4. Bert Fraleigh | - President, Oneola Co., Inc. |
| 5. Patrice Tottori | - Executive Director of the Land Use Research Foundation of Hawaii |
| 6. Rep. Calvin Say | - State House of Representatives |
| 7. Thomas Ikehara | - Citizen |
| 8. Aaron Israel | - Kapoho Community Association |
| 9. Howard Chapman | - Regional Director, U.S. Dept. of the Interior, Nat'l Park Service, Western Region |

- General correspondence concerning the Kilauea Southwest Rift as a Geothermal Resource Subzone received since the public hearings.

Proponents

- | | |
|-------------------|--|
| 1. Robert Ota | - Vice President, Agricultural Loan Administration, Bank of Hawaii |
| 2. Sharon Scheele | - President, Hawaii Island Chamber of Commerce |
| 3. Ian Bowman | - Vice Pres. and Manager, Kau Agribusiness Co., Inc. |
| 4. William Case | - Senior Vice Pres., C. Brewer & Co., Ltd. |
| 5. Richard West | - Bank of Hawaii, Kaiko'o Branch |
| 6. Cecil Smith | - Chairperson, Federal Gulf Corp. |
| 7. Leroy Uyehara | - Vice Pres., Hawaiiana Investment Co., Inc. |
| 8. R. L. Herberg | - Senior Vice Pres., Land Resources, C. Brewer & Co., Ltd. |

It should be noted that a small number of proponents included in the lists above, have stated their support of Geothermal Resource Subzones with some reservations related to compatibility and environmental concerns.



DEAN NAKANO



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
P. O. BOX 621
HONOLULU, HAWAII 96809

SUSUMU ONO, CHAIRMAN
BOARD OF LAND & NATURAL RESOURCES

EDGAR A. HAMASU
DEPUTY TO THE CHAIRMAN

DIVISIONS:
AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
LAND MANAGEMENT
STATE PARKS
WATER AND LAND DEVELOPMENT

MEMORANDUM

TO: Members of the Board of Land and Natural Resources

FROM: Susumu Ono

SUBJECT: Geothermal Technical Reports,
Circulars C-103 to C-108

I am pleased to enclose six technical reports on geothermal resource subzones for your information. Publication of these reports completes the staff work on the initial statewide assessment of geothermal resources and the related impact analysis. The reports are:

Statewide Geothermal Resource Assessment, Circular C-103.

Social Impact Analysis of Potential Geothermal Resource Areas, Circular C-104.

Economic Impact Analysis of Potential Geothermal Resource Areas, Circular C-105.

Environmental Impact Analysis of Potential Geothermal Resource Areas, Circular C-106.

Geologic Hazards Impact Analysis of Potential Geothermal Resource Areas, Circular C-107.

Geothermal Technology, Circular C-108.

Should you have any questions on the publications, please contact Mr. Robert T. Chuck of the Division of Water and Land Development, phone 548-7539.

SUSUMU ONO
Chairperson of the Board

Encl.

FEB 27 1984

MEMORANDUM

TO: Members of the Board of Land and Natural Resources

FROM: Susumu Ono

SUBJECT: Progress Report on the Designation of Geothermal Resource Subzones

With reference to the Plan of Study for Designating Geothermal Resource Subzones previously sent to you, I am pleased to present this brief progress report on the activities of the staff to date.

o Assessment of Available Information. A copy of a report on the Assessment of Available Information on Geothermal Resource in Hawaii is enclosed for your information. This report, identified as a major task in the Plan of Study, is significant in that the law (Act 296, SLH 1983) specifies that the Board in assessing potential geothermal resource subzones may base their assessment on currently available public information. We plan to continue seeking additional information that may be available in the private sector to expand our information base.

o Administrative Rules. A draft copy is enclosed for your early review. We are awaiting preliminary approval from the Governor before we seek approval from the Board to hold state-wide public hearings.

o Assessment of Geothermal Areas. A Technical Advisory Group has been formed to begin the review of available geothermal resource information and to identify the availability of specific geothermal resource areas in the State of Hawaii. In this connection, detailed mapping of potential areas are proceeding for the East Rift Zone on Hawaii and the Southwest Rift Zone on Maui.

o Impact Analysis. Discussions are in progress to enlist the help of the University of Hawaii's Environmental Center to assist the staff in conducting environmental impact analysis

Memo to Members of the Board
of Land and Natural Resources

FEB 27 1984
Page 2

of potential subzone areas. Other experts in the field of social, economic, and hazard assessments are being sought to assist the staff.

We are pleased with the support provided by the Department of Planning and Economic Development in making funds available to hire a Geologist and an Energy Specialist to complement the technical staff available in DOWALD to work on this project.

In the next month, we plan to hold a briefing for Board members on further progress of the staff and to answer questions you may have with respect to the work completed. Meanwhile if you have any questions on the materials furnished, please let me know or you may contact Robert T. Chuck at 548-7539.

J B / SUSUMU ONO

SUSUMU ONO
Chairperson of the Board

RTC:MT:ko
Enc.

May 11, 1984

DIRECTION MEMO

TO: WR-FC Staff
FROM: Manabu Tagomori
SUBJECT: Staff Assignments on Geothermal Resource Subzones

On May 10, 1984, the following staff assignments were made on the geothermal resource subzone project:

<u>Task</u>	<u>Responsible Person</u>
● Land ownership maps	Bill Koyanagi
● State and County Land Use Zoning Maps.	George Matsumoto
● Present Land Use Maps	George Matsumoto
● Compatibility of geothermal activity with surrounding land uses - maps and narratives	Neal Imada/ George Matsumoto
● Climatology (rainfall, wind, temperature) - maps and narrative	Paul Haraguchi
● Surface water (streams, catchment facilities)	George Matsumoto
● Groundwater hydrology - maps and narrative	Dan Lum/Ed Sakoda
● Flora and Fauna - maps and narrative	Lee Hannah
● Flood Analysis - maps and narrative	Al Ching
● Environmental Impact Analysis Report	Sherrie Samuels

In addition to the above assignments, the following tasks and responsible programs are proceeding with other parts of the project:

<u>Task</u>	<u>Responsible Person</u>
Geothermal Resource Assessment Report	Dean Nakano
Geologic Hazard Impact Analysis Report	Joe Kubacki
Social Impact Analysis Report	Si Si Stamper/ Bay Yee (ECMI)
Economic Impact Analysis Report	Steven Tanimura/ Bay Yee (ECMI)
Final Report	Si Si Stamper/ Bay Yee (ECMI)

May 11, 1984

The target completion for all staff work is May 25, 1984. The mappable information will be displayed in overlay format using the geothermal resource assessment maps as base.

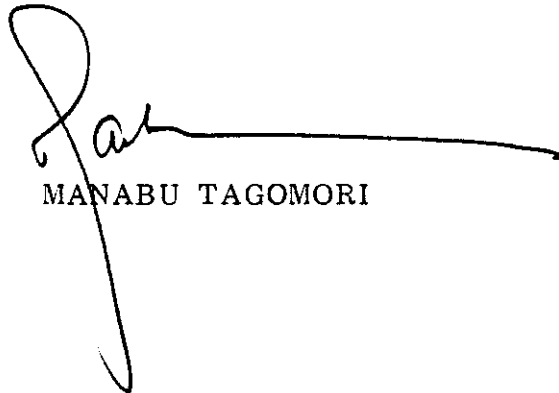
Base maps of 1:24000 (1"=2000') scale will be used to map all information. Bill Koyanagi will supply all base maps.

The impact information will be used at the next Public Information meeting scheduled for May 29th in Hilo and May 30th in Kahului, Maui.

Several areas have been identified for analysis. As a result, the following priority listing has been established for guiding staff work:

1. Upper Kilauea East Rift Zone
2. Lower Kilauea East Rift Zone
3. Lower Kilauea Southwest Rift Zone (Pahala Section)
4. Haleakala Southwest Rift Zone
5. Mauna Loa Northeast Rift Zone
6. Mauna Loa Southwest Rift Zone
7. Hualalai Northwest Flank
8. Haleakala East Rift Zone

All questions by staff should be directed to me or, in my absence, please see Dean Nakano.

A handwritten signature in black ink, appearing to read 'Manabu', with a long horizontal line extending to the right.

MANABU TAGOMORI

A GEOTHERMAL ECONOMIC ASSESSMENT

Introduction

The following set of assumptions are based upon current activity in the geothermal area:

- * a 20 to 30 megawatt plant would be constructed
- * the application of the geothermal wells would be for the production of electricity only

Economic Impacts

The overall assessment is that the assumed 25 MW geothermal power plant will have, at best, limited economic impact on a State-wide and County-wide basis. Based upon the data available, the direct wages to the 25 direct project employees will be about \$560,000 per year. This direct income will stimulate a multiplier effect totalling an estimated \$1.3 million. Additionally, an estimated 57 additional jobs will be created.

Public Revenue and Cost Analysis

Public Sector Revenue

The selected sources of public revenue analyzed, will not yield a significant amount, in relative terms as well as in absolute ones, due to the size of the plant. However, a more precise analysis will be required, at which time other revenue sources such as the royalty income from geothermal leases will be incorporated.

Community Resource Analysis

Overall, the impact of the 25 additional households to the community will be primarily in the housing market. Other community resources will not be affected in a significant manner.

Other Considerations

The assumption that the plant would be used solely for the production of electricity would be a fairly accurate one for the plant size of 20 to 30 MW being considered here.

Direct use and other applications would alter the plant size requirements. In addition, more significant impacts on the economy would occur, both benefits and costs: more jobs, increased public revenue, increased housing and infrastructure demands, etc.

Regardless of the ultimate size of the plant decided upon, a site-specific analysis must be made before any definitive statements can be made on the relative economic impacts and benefits/costs to be realized by the existence of the geothermal plant.



**ENVIRONMENT
CAPITAL
MANAGERS
INC.**

SUITE 805 CITY BANK BUILDING • P. O. BOX 1232 • HONOLULU, HAWAII 96807 • TELEPHONE (808) 537-3007

Mr. Robert Chuck, P.E.
Manager-Chief Engineer
State Department of Land and
Natural Resources
Division of Water and Land Development
P. O. Box 373
Honolulu, Hawaii 96809

Dear Mr. Chuck:

Act 296, SLH 1983, relating to geothermal energy was signed into law on June 14, 1983 by Governor George R. Ariyoshi.

The Board of Land and Natural Resources is charged with the responsibility of designating geothermal resource subzones in the State of Hawaii. Once subzones are established, all geothermal activities, including the exploration, development, production and distribution of electrical energy may be conducted only in the designated geothermal resource subzones.

The Department of Land and Natural Resources has developed a Plan of Study which outlines the implementing strategy in designating geothermal resource subzones in the State of Hawaii.

The study approach involves four (4) phases:

- I. State Wide Geothermal Resource Assessment
- II. Social, Economic, Environmental, and Hazard Impact Analysis
- III. Public Participation and Information
- IV. DLNR Designation of Geothermal Resource Subzones.

Act 296, SLH 1983, designated the Board of Land and Natural Resources with the responsibility for designating geothermal resource subzones. The Chairperson has assigned the subzone task to the Division of Water and Land Development (DOWALD) and has designated the Division's Manager-Chief Engineer as the principal contact person.

Other offices within the Department of Land and Natural Resources identified to assist DOWALD in their respective functional areas are the Deputy to the Chairperson, Division of Land Management, and the Planning Office.

Other Agencies involved include the Hawaii Institute of Geophysics (HIG), University of Hawaii; Department of Planning and Economic

Mr. Robert T. Chuck, P.E.
Manager-Chief Engineer
March 16, 1983
Page 2

Development (DPED); Department of Health (DOH); State Land Use Commission (LUC); County Planning Departments; and Puna Geothermal Resource Developers.

Environment Capital Mangers, Inc., (ECMI) has been asked to provide assistance to the Board of Land and Natural Resources in the assessment of potential geothermal resource subzones. ECMI is pleased to submit this proposal for assistance.

Scope of Work

The Scope of Work shall include coordinating the effort and writing the report on the assessment of potential geothermal resource subzones.

The Work will include:

- A. Incorporating the Phase I Statewide Geothermal Resource Assessment as an overview.
- b. Concentrating on two specific subzones and generalizing on all the other potential subzones as a group in relation to factors including, but not limited to:
 - (1) The area's potential for the production of geothermal energy;
 - (2) The prospects for the utilization of geothermal energy in the area;
 - (3) The geologic hazards that potential geothermal projects would encounter;
 - (4) Social and environmental impacts;
 - (5) The compatibility of geothermal development and potential related industries with present uses of surrounding land and those uses permitted under the general plan or land use policies of the county in which the area is located;
 - (6) The potential economic benefits to be derived from geothermal development and potential related industries; and
 - (7) The compatibility of geothermal development and potential related industries with uses permitted under sections 183-41 and 205-2, where the area falls within a conservation district.

METHOD OF APPROACH

The Method of Approach involves ECMI assisting as members of the Division of Water and Land Development (DOWALD) staff reporting to the Division's Manager-Chief Engineer (Mr. Robert T. Chuck).

Mr. Robert T. Chuck, P.E.
Manager-Chief Engineer
March 16, 1984
Page 3

for After a brief review of material from DOWALD such as Plan of Study for Designating Geothermal Resource Subzones, Geothermal Resources Development, Assessment of Available Information Relating to the Existence of Geothermal Resources in Hawaii, etc., ECMI shall prepare an outline for DOWALD's review. DOWALD and ECMI shall review the outline, making modifications, additions and deletions. Upon concurrence, the approved outline shall be followed as best of possible in the preparation of the assessment of potential geothermal resource subzones report.

In view of the constraints of time and budget, it is understood that ECMI shall use its "best effort" to coordinate the effort and write the report.

It is understood that the material to be used to fill the outline shall be from currently available data or data easily obtained. If new data is required (i.e. potential benefit of geothermal power by replacing imported fuel oil by Maui Electric), ECMI may ask DOWALD's staff to gather the material. In the event data does not exist, it shall be so reported in the assessment.

STAFF

The project will be supervised by Mr. Bay K. C. Yee, President of ECMI. Mr. Yee will be responsible for the coordination of the work. Ms. Si Si Stamper will be project leader with responsibility for the writing of the report, assisted by Mr. Steven A. Tanimura. Resumes of the staff are attached.

TIME

ECMI shall proceed immediately with the project upon acceptance of this proposal. It is estimated that the time required to complete this study will be three (3) months. If notice to proceed is received by March 31, 1984, the project will be completed by June 30, 1984.

COST

The cost for this ECMI Professional Services will be \$19,000.00 plus 4% State Tax. The product of the work will be one (1) camera-ready copy of the final report. It is understood that graphics such as maps, charts, graphs, etc., shall be provided by DOWALD for inclusion in the report.

March 14, 1984

MEMORANDUM FOR THE RECORD

FROM: Joe Kubacki and Dean Nakano
SUBJECT: Meeting to Discuss Geothermal Development
on Maui

Meeting was held on March 13, 1984 at 2 p.m. in the DOWALD conference room.

In attendance:

Edgar Hamasu, DLNR	Rod Moss, V.P.
Bob Chuck, DLNR-DOWALD	Mid-Pacific Geothermal
Manabu Tagomori, DLNR-DOWALD	Alan Kawada, True Geothermal
Dan Lum, DLNR-DOWALD	Art Henderson, Pres., MECO
Dean Nakano, DLNR-DOWALD	Robert Freitas, HECO Engr. Dept.
Joe Kubacki, DLNR-DOWALD	Roy Uemura, HECO Engr. Dept.
	Tom O'Brien, DPED
	Gerald Lespevance, DPED

Bob Chuck chaired the meeting and addressed the points listed in the attached agenda.

Items raised at the meeting:

- Rod Moss was concerned that the Underground Injection Control (UIC) program would prevent or impede Maui geothermal development. Bob Chuck stated that any concerns involving the UIC line should be brought before DOH, since they are administering the program.
- Rod Moss stated that the Maui geothermal development may eventually involve 50 MW from three power plant sites on Haleakala's SW rift zone. The first unit would be about 13 MW and would require about 3 acres. Mid-Pac has acquired a lease from Ulupalakua Ranch and anticipates applying for leases on some State conservation lands.
- An environmental air quality study is being prepared with DPED, MECO, and True-Mid Pac sharing the expenses. It appears that one monitoring site will be used to establish baseline data from May 1984 to April 1985.
- True-Mid Pac has set target dates of January 1985 for drilling of exploration wells and 1988 for on-line power. MECO needs expanded plant capacity by at least 1990.
- MECO and True-Mid Pac agreed to share technical and impact information with DLNR in connection with the geothermal subzone designation work.

JOE KUBACKI

DEAN NAKANO

JK:DN:ko
Attach.

MEMORANDUM

March 8, 1984

SUBJECT: MECO Geothermal Project
Meeting with DLNR

A meeting has been scheduled with DLNR to discuss the MECO Geothermal Development project.

Date: March 13, 1984
Time: 2 p.m.
Place: DLNR Conference Room 227

Items to be discussed are as follows:

1. Environmental base-line monitoring of Haleakala South-west rift zone.
2. Status of designating geothermal resources subzones (GRS).
3. Meeting/hearing scheduled in late April 1984 by DLNR on Maui to discuss the status of designating GRS.
4. Commitment by MECO and True/Mid-Pacific on the project.
5. Data available to T/M indicating potential geothermal resource on Haleakala South-west rift.
6. Proposed project areas.
7. How to expedite designation process.
8. How to expedite changing Underground Injection Control (UIC) regulations to allow injection in project areas.
9. How to expedite project.
10. Establish cooperative atmosphere among developer, user and regulator.



S. Tanno

RTU:mac

cc: E. Y. Hirata
A. G. Henderson
T. M. Sato
(R) B. Freitas
R. T. Uemura ✓

February 16, 1984

Mr. Reginald Okamura
and
Mr. Robert Koyanagi
U.S. Geological Survey
Hawaiian Volcano Observatory
Hawaii National Park, HI 96718

Dear Sirs:

Thank you for your assistance and valuable information regarding recent lava flows and earthquake data made available to Dean Nakano and Joe Kubacki of our office. These excellent maps detailing geophysical information, in addition to the monthly Hawaiian Volcano Observatory Reports will be of great help in the designation of Geothermal Resource Subzones by the Board of Land and Natural Resources.

We appreciate your interest in the development of geothermal resources on the island of Hawaii and look forward to your continued assistance.

Very truly yours,

ROBERT T. CHUCK
Manager-Chief Engineer

DN:ko



February 14, 1984

MEMORANDUM FOR THE RECORD

FROM: Joe Kubacki and Dean Nakano

SUBJECT: Meeting at Hawaiian Volcano Observatory;
Inspection of Geothermal Wells; and
Attendance of Geothermal Advisory Committee
(GAC) Meeting

On February 9, 1984 we met with Bob Koyanagi and Reggie Okamura of Hawaiian Volcano Observatory to discuss geologic hazards relating to geothermal development. Excellent maps of earthquake occurrence and recent lava flows were made available to us.

We visually inspected and took photos of the following wells:

- Lanipuna #1: Drilling suspended, cellar and conductor pipe in place.
- Lanipuna #2: Cellar and conductor pipe in place.
- Lanipuna #3: Graded site only.
- Lanipuna #6: All drilling equipment in place, awaiting County permit. Bill Craddick answered questions at site.
- Kapoho #1 &
#2: Some personnel on site. Wells completed. Records indicate wells are being tested.

On February 10, 1984 Don Thomas provided tour of HGP-A.

Attended GAC meeting, chaired by Tak Yoshihara of DPED, and attended by developers, HECO, State and County officials, and members of the community. Attached is a copy of the agenda. Minutes of the meeting will be forthcoming from Gerry Lesperance of DPED.


JOE KUBACKI


DEAN NAKANO

JK:DN:ko
Attach.

Agenda

Geothermal Advisory Committee Meeting

Conference Room, State Building
75 Aupuni Street, Hilo

February 10, 1984 - 1:00 p.m.

1. Minutes of January 6, 1984
2. Old Business
3. Reports:
 - a. Barnwell Geothermal
 - b. Puna Geothermal Venture
 - c. True/Mid-Pacific Geothermal Venture
 - d. HGP-A Plant
 - e. Hawaii Deep Water Cable Demonstration Program
 - f. Kilauea East Rift Zone Environmental Baseline Survey
 - g. Puna Health Survey
 - h. Dames & Moore Geothermal Emission Study
 - i. Geothermal Resources Council Meeting (Kona, August 1985)
4. Other Business
5. Date and Time for Next Meeting

*Neal - Check
if we need to
follow-up.*

FEB 21 1984

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

Dear Mr. Craddick:

This is in response to your recent letter advising the Board of Land and Natural Resources of your intent to apply for a geothermal mining lease for approximately 2,364 acres at Halekamahina-Puua, Puna, Hawaii (TMK: 3-1-4-0117, 18, 64-79).

The Board's designation of Geothermal Resource Subzones pursuant to Act 296 is currently under study, and your request that this property be included in the proposed subzone will be reviewed.

The offer to provide us assistance in the implementation of Act 296 and your continued support of geothermal development in Hawaii is greatly appreciated.

Very truly yours,

(Signature)

SUSUMU ONO
Chairperson of the Board

RTC:DN:ko

November 22, 1983

MEMORANDUM

TO: Dr. Takeshi Yoshihara
Division Head, Energy Division
Dept. of Planning and
Economic Development

FROM: Manabu Tagomori, Chief Water Resources
and Flood Control Branch

SUBJECT: California Energy Commission Report

Thanks much for sending us the report on geothermal development impacts.

It gives us some ideas on what's involved when we begin the subzone impact analysis.

MANABU TAGOMORI

MT:ey

November 4, 1983

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

Dear Mr. West:

This is in response to your recent letter requesting information on the impact of the newly enacted geothermal law, Act 296 relating to the designation of geothermal resource subzones, on existing geothermal exploration activities such as that undertaken by Geothermal Exploration and Development Corporation (GEDCo.).

Since the signing of Act 296 by the Governor on June 14, 1983, the Attorney General's Office has been studying several questions raised on the Act. On August 3, 1983 the Department received an application from GEDCo. to drill a geothermal well in Puna. In view of the questions under study by the Attorney General's Office, we were advised to refer the application to the Attorney General's Office for review.

On November 3, 1983, we received an opinion from the Attorney General's Office which allows the Department to process the GEDCo. application for a drilling permit. As a result we are now processing the application.

We appreciate your interest in the development of geothermal resources on the island of Hawaii.

Very truly yours,

/s/ SUSUMU ONO

SUSUMU ONO
Chairperson of the Board

RTC:MT:ey

Mr. Jere Denton
Vice President
Hawaii Project
Thermal Power Company
1600 Kapiolani Blvd., Suite 808
Honolulu, Hawaii 96814

Dear Mr. Denton:

Thank you for sending us a report by Dr. Howard P. Ross entitled "A Review of Public Geophysical Data, Kilauea - East Rift Area, Hawaii". The report and the nine maps detailing geophysical information will be of great help in the designation of geothermal resource subzones by the Board of Land and Natural Resources.

We appreciate your offer to provide us assistance in the implementation of Act 296. My staff will be contacting you soon as we are beginning the subzoning work.

Very truly yours,

SUSUMU ONO

SUSUMU ONO
Chairperson of the Board

RTC:MT:ko