

JOHN WAIHEE
GOVERNOR OF HAWAII



*Approved
4/1992*

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

KEITH W. AHUE
MANABU TAGOMORI
DAN T. KOCHI

AQUACULTURE DEVELOPMENT PROGRAM
AQUATIC RESOURCES CONSERVATION AND ENVIRONMENTAL AFFAIRS
CONSERVATION AND RESOURCES ENFORCEMENT CONVEYANCES
FORESTRY AND WILDLIFE HISTORIC PRESERVATION PROGRAM
LAND MANAGEMENT
STATE PARKS
WATER RESOURCE MANAGEMENT

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

GEOHERMAL WELL MODIFICATION AND CONVERSION PERMIT
Kapoho State No. 3 (KS-3)
Kapoho, Puna, Hawaii

TO: Puna Geothermal Venture
P.O. Box 1337
Hilo, Hawaii 96721-1337

Your application dated December 9, 1991, for a permit to modify and convert geothermal production well Kapoho State No. 3 (KS-3) to an injection well, located within the Kapoho Section of the Kilauea Lower East Rift Geothermal Resource Subzone and covered under the State of Hawaii, Geothermal Resource Mining Lease No. R-2, is approved:

Well Designation: Kapoho State No. 3 (KS-3)
Location: TMK 1-4-01:02, Kapoho, Puna, Hawaii (Well Pad E)
Leased to: Kapoho Land Partnership
Subleased to: Puna Geothermal Venture
Operator: AMOR VIII Corporation
Ground Elevation: 620 +/- feet
Total Depth: 7,316 feet

Puna Geothermal Venture is hereby granted permission to modify and convert geothermal production well KS-3 to an injection well.

Modification of well KS-3 shall be completed in accordance with the approved modification plans (KS-3 Recompletion Program) and in accordance with the Department's (Department of Land and Natural Resources) Administrative Rules, Chapter 13-183, HAR, and conditions 1 through 15 of this permit.

Conversion of well KS-3 from a production well to an injection well shall be contingent upon successful completion of a Testing and Injection Program approved by the Department of Health and as specified in the Underground Injection Permit No. 1529 and the following conditions:

- (1) All work shall be performed in accordance with the permission and terms of the occupiers of the land, the Program for Recompletion, and the Program for Testing and Injection submitted with your application, the Department's Administrative Rules (Chapters 13-183 and 13-184, HAR), and all other applicable Federal, State, and County laws, ordinances, rules, and regulations;
- (2) The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, and death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit;
- (3) The permittee shall observe and comply with all valid requirements of County, State, and Federal authorities and regulations pertaining to the lands and permittee's operations including, but not limited to, all water and air pollution control laws and those relating to the environment;
- (4) The well and bottom-hole location shall be located more than 100 feet from the outer boundary of the parcel of land on which the well is situated, or more than 100 feet from a public road, street, or highway dedicated prior to the commencement of drilling, unless modified by the Chairperson upon request;
- (5) The permittee shall notify the Division of Water Resource Management (DWRM), in writing, of the date of the start of the well modification/completion work;
- (6) The permittee shall submit to the Department the bottom-hole target location and direction of any proposed deviation;
- (7) All Blow-Out Prevention Equipment (BOPE) and cemented casing strings shall be pressure tested before commencing any other operations on the well. Test pressures shall not be less than 600 pounds per square inch nor greater than 1,500 pounds per square inch, and shall be applied for a period of thirty minutes. The results of the pressure tests shall be reported on forms provided by the Department.

If a drop of more than ten percent of the casing test pressure is recorded, the operator shall then run a caliper log and/or other appropriate well test to determine if the casing is defective and if corrective measures will be required before commencing any further operations. The results of the prescribed casing tests and any remedial work conducted shall be submitted to the Department within sixty days after completion;

- (8) Class "G" cement shall be used in any casing cementing operations and shall contain a high temperature resistant admix;

- (9) If changes to the proposed well completion program are contemplated, the permittee shall obtain the Chairperson's approval before executing such changes;
- (10) Approval by the Department of Health must be received prior to commencement of injection operations proposed in the KS-3 Well Testing and Injection Program;
- (11) During the use of the well for testing, monitoring, production, and/or injection purposes, the well and site shall be properly maintained until the well is plugged and abandoned in accordance with the Department's Administrative Rules, Chapter 13-183, HAR;
- (12) The Permittee shall submit to the Chairperson the results of any exploration, all drilling and testing records, down-hole surveys of the well, bottom-hole location, date of completion, and a survey of the well location and elevation above mean sea level taken by a Hawaii licensed surveyor with six months after completion of the well;
- (13) A well completion report, an as-built drawing of the well, and the location of the well plotted on a U.S.G.S. quad scale map shall be filed with the Department within six months after completion of the well modification;
- (14) The bond covering the well shall remain in full force and effect until the well is properly abandoned and the surface is restored as near as possible to its original condition;
- (15) This permit shall expire 365 days from the date of issuance.



WILLIAM W. PATY, Chairperson
Board of Land and Natural Resources

MAR 4 1992

Date of Issuance

cc: Land Board Members
Hawaii County Planning Dept.
DBEDT
Department of Health
OEQC

JOHN WAIHEE
GOVERNOR OF HAWAII



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

P. O. BOX 621
HONOLULU, HAWAII 96809

MAR 4 1992

WILLIAM W. PATY, CHAIRPERSON
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

KEITH W. AHUE
MANABU TAGOMORI
DAN T. KOCHI

- AQUACULTURE DEVELOPMENT PROGRAM
- AQUATIC RESOURCES CONSERVATION AND ENVIRONMENTAL AFFAIRS
- CONSERVATION AND ENVIRONMENTAL AFFAIRS
- RESOURCES ENFORCEMENT
- CONVEYANCES
- FORESTRY AND WILDLIFE HISTORIC PRESERVATION PROGRAM
- LAND MANAGEMENT
- STATE PARKS
- WATER RESOURCE MANAGEMENT

REF:WRM-CD

Mr. Maurice A. Richard
Vice President
Puna Geothermal Venture
101 Aupuni Street
Suite 1014-B
Hilo, HI. 96720

Dear Mr. Richard:

Puna Geothermal Venture Project
Well Kapoho State (KS-3)

Thank you for your letter of February 14, 1992, informing the Department of Land and Natural Resources of your intent to undertake an injection test and casing inspection program on KS-3 prior to moving the rig to KS-3, and upon completion of those tests, moving the rig to KS-3 for the purpose of modification, as specified in your application for permit dated December 9, 1991.

Should you have any questions, please contact Manabu Tagomori, Deputy Director, at 587-0214.

Very truly yours,

WILLIAM W. PATY

WEM
MT

PUNA GEOTHERMAL VENTURE

A Hawaii Partnership

February 14, 1992

Mr. William Paty
Chairperson
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Paty:

Subject: Puna Geothermal Venture Project
Well Kapoho State 3 (KS-3)

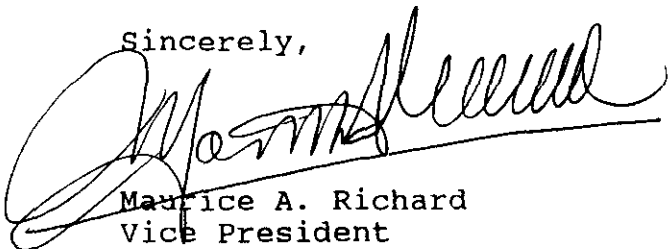
Our December 9, 1991, letter to you outlined our decision to convert well KS-3 from a production to an injection well and detailed our recompletion plans for that well.

To further clarify our intent concerning the KS-3 well, we would like to inform you that:

1. the injection test and casing inspection program will be undertaken prior to moving the rig to KS-3; and
2. upon completion of those tests, the rig will be moved to KS-3 for the purpose of installing the protective liner we feel will extend the life of the existing casing.

If you have any questions concerning our plans for KS-3, please feel free to contact me in the Hilo office at 961-2184.

Sincerely,



Maurice A. Richard
Vice President
Puna Geothermal Venture

cc:

C. Hew, DOH
J. Lewin, DOH
J. Swift, DLNR
M. Tagomori, DLNR
E. Tanaka, DLNR

92021.011