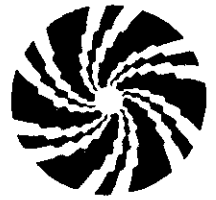


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DEPARTMENT OF WATER & LAND DEVELOPMENT
STATE OF HAWAII
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May 22, 1989
Reference No. 89141S

DEPARTMENT OF WATER & LAND DEVELOPMENT
STATE OF HAWAII

Mr. William Paty
Chairman
Board of Land and Natural Resources
Kalanimoku Building, #130
1151 Punchbowl Street
Honolulu, Hawaii 96813

Subject: Well Modification Permit Request

Reference: Geothermal Well: Kapoho State #1-A
Geothermal Resources Mining Lease R-2
Location TMK 1-4-01:02 Kapoho, Puna District,
Hawaii County Leased to Kapoho Land Partnership

Dear Mr. Chairman:

A Department of Land and Natural Resources (DLNR) permit exists for the drilling and completion of the reference well. Since the conclusion of drilling and flow testing in 1985, Kapoho State #1-A has been maintained in a shut-in status with periodical gas cap ventings and incineration or burning of the exhausted gases. Puna Geothermal Venture (PGV) has closely monitored this well and complied with DLNR reporting requirements.

Puna Geothermal Venture herewith submits a Well Modification Permit request consistent with Chapter 183 of Title 13, Subchapter 183-65-4.

The attached work description and well casing configuration drawing including the approximate location of the proposed cement plug is attached for reference.

In brief, the PGV request is based on a technical need to periodically service the wellhead assembly to maintain a high standard of reliability and integrity. This routine servicing process is also timed to fit within the overall 30 MW development schedule and expected County permitting approvals and related requirements now in progress.

PUNA GEOTHERMAL VENTURE

101 Aupuni Street Suite 1014-B, Hilo, Hawaii 96720
 610 East Glendale Ave., Sparks, Nevada 89431-5811

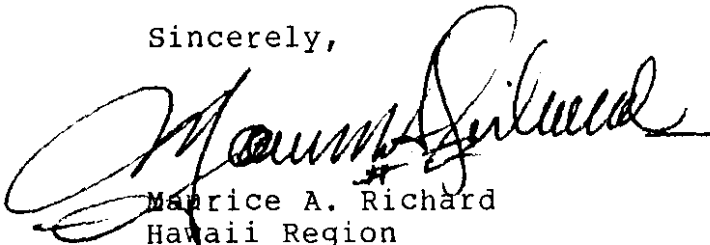
• Telephone (808) 961-2184
• Telephone (702) 356-9111

• Facsimile (808) 961-3531
• Facsimile (702) 356-9125

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Your early consideration and approval will be appreciated.
Please contact the Hilo office of Puna Geothermal Venture if
you or your staff have any questions about the above request.

Sincerely,

A handwritten signature in cursive script, appearing to read "Maurice A. Richard".

Maurice A. Richard
Hawaii Region
Development Manager

Attachment

MAR/ci

Program to Temporarily Suspend KS-1A with Cement Plug

1) Purpose of Work

It will be at least a minimum of a year before KS-1A is needed for production service. Therefore PGV has decided to temporarily suspend the well by setting a 150 foot cement plug in the casing at 3000 feet. This will eliminate the need for further gas burns and will permit the wellhead to be serviced and the condition of the production casing to be checked in preparation for putting the well in service.

2) Plan of Work

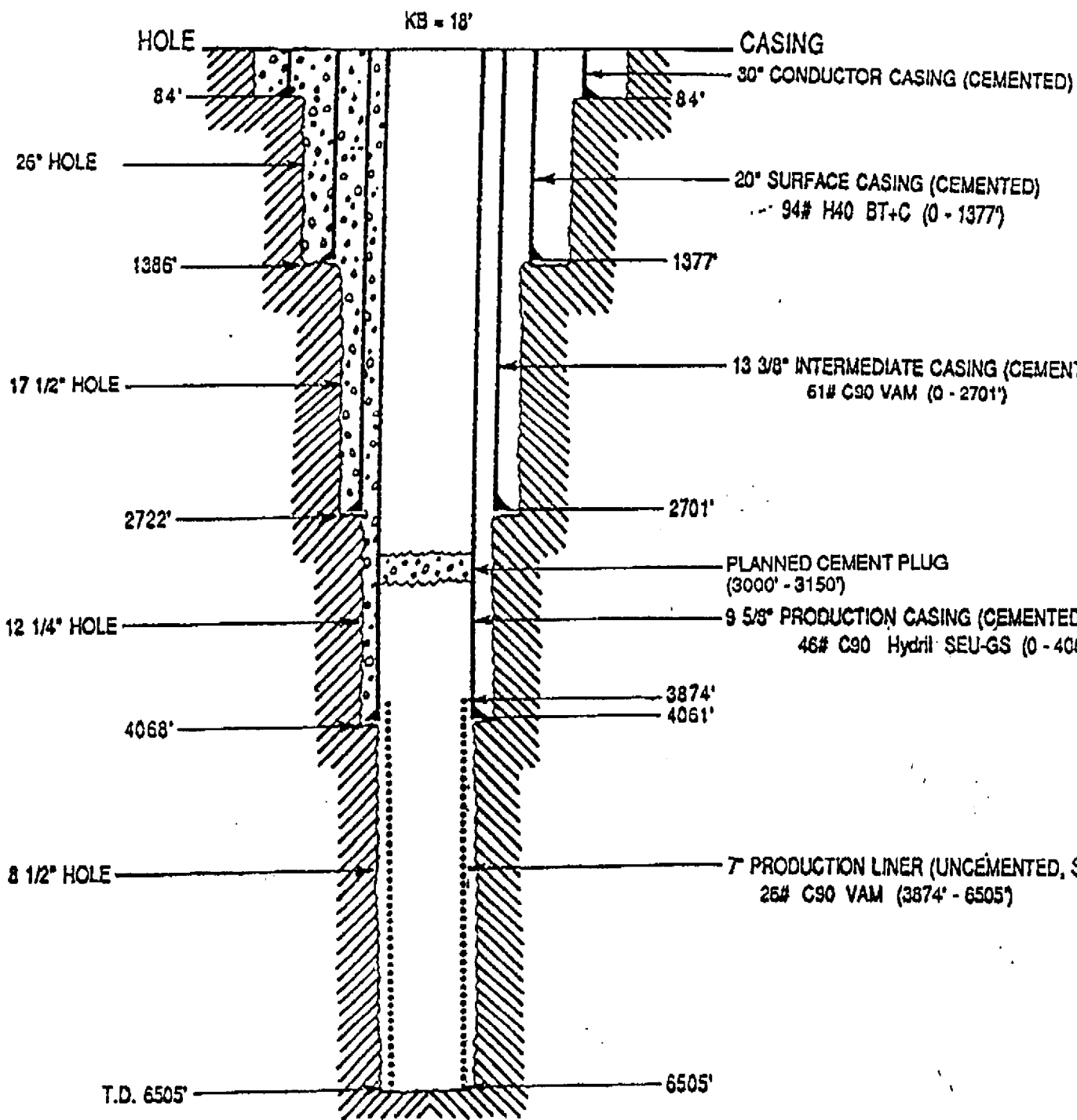
The design of KS-1A showing the planned cement plug is shown in the attached figure. The setting depth of 3000 feet was chosen in order that the reservoir pressure beneath the plug will be balanced by the pressure exerted by the column of water in the wellbore above the plug. A rig will not be needed to carry out the work.

The operation is planned as follows :

1. Run sinker bar to 4500 feet.
2. Run a static pressure and temperature survey to 4500 feet.
3. Nipple-up pump to 3" side valve and kill well by slowly pumping cold water.
4. With the well killed run an 8" gauge ring to 3500 feet. Continue to pump water to maintain kill.
5. Run temperature survey to 4000 feet while maintaining kill to assess wellbore temperatures for cement slurry design.
6. Insert 9 5/8" bottom wiper plug through wellhead.
7. Pump 75 gallons (25 liner feet) water on top of plug.
8. Mix 60 cu ft (150 liner feet) geothermal cement and drop on top of water.
9. Insert top wiper plug and displace cement plug to 3000 feet with water (220 barrels).
10. Wait on cement 24 hours.
11. Run sinker bar to top of cement to check depth.
12. Shut-in wellhead and secure.

The operation is anticipated to take a total of 5 to 7 days.

KAPOHO STATE #1A WELL



Planned Cement Plug in KS-1A