

*Ashida Well #1*

**GEOHERMAL DRILLING PROGRAM**  
**FOR**  
**BARNWELL GEOTHERMAL CORPORATION**

**DIV. OF WATER &  
LAND DEVELOPMENT**

**80 JUL 28 AIO: 11**

**RECEIVED**

**PREPARED BY: Willis R. Craddick  
Clarence J. Mason  
(Water Resources International, Inc.)**

**JULY, 1980 (REVISED COPY)**

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## General Drilling Instructions

1. Run Totco deviation survey every 120 feet or as needed to control well bore deviation. Hang Totco wireline sheave on hook to enable movement of drill pipe while "running in", and "pulling out". Keep drill pipe moving, except while shot is going off to prevent differential (wall) sticking.
2. Enter on daily log mud temperature "out hole" and "in hole" once every tour until we reach 1200 feet. After 1200 feet take temperature every 4 hours and enter on daily drilling log.
3. Each crew is to have one simulated "blow-out drill" per week, with the results entered in the daily drill log. Limit "drill" to 15 minutes. At no time during a "blow-out drill", is mud to be actually pumped into the hole with any preventer closed.
4. Have core barrel (in good working order) on the location for use, if required.
5. Strap weld all subs and/or bits run under hole-openers.
6. Run drill pipe float valve in 8-1/2" hole and keep a "wet plug" with valve in open position on rig floor at all times.
7. Keep Bagasse, Nut Hulls, Cotton Hulls, Jel-flake, Mica (coarse and fine), Lignite, Bentonite, etc. on site at all times. Keep covered and protected from the rain at all times.
8. All measurements will be from the top of the Kelly Bushing (RKB).
9. Keep hole full of mud at all times, except when drilling without returns.
10. Check operation of B.O.P.E. each round trip or daily, whichever occurs first. Enter in the daily log.
11. Do not use spinning chain on drill collars, use chain tongs only.  
Torque 11" drill collars to 110,000 ft. lbs.  
Torque 8" drill collars to 56,000 ft. lbs.  
Torque 6-3/4" drill collars to 36,000 ft. lbs.
12. Make entries of all pertinent information on drilling recorder chart.
13. Fill out daily drilling reports complete. Log all voids and loss circulation zones.

14. Procedure for mixing air foam mix - ADD to 100 barrels of water in the following sequence:
  - a. 75 lbs. soda ash over 15 minutes period,
  - b. 1250 lbs. bentonite over 45 minutes period,
  - c. 40 lbs. CMC along with bentonite over 45 minutes period,
  - d. 30 gals. detergent directly into suction pit as mix is being transferred from mixing pit to suction pit. Over the period of time it takes to transfer the mix.
15. Hold weekly safety meetings (15 minutes) and document with weekly safety meeting attendance records.
16. Contact State Department of Water and Land Chairman or his designated representative well in advance so that he has time to travel to the drill site to witness the pressure tests, etc. Phone numbers are: 961-7279 - Hilo, and 548-7643 - Honolulu.
17. All operations to be conducted in accordance with the State Regulation No. 8, Rule 9 governing Geothermal Resources and Drilling, June 1978.

Specific Drilling Instructions for Geothermal Well

WELL PROJECT: Ashida No. 1 (Exploratory Well)  
LOCATION: Opihikao, Puna, Hawaii  
OPERATOR: Barnwell Geothermal Corporation  
PARTNERSHIP: Barnwell Geothermal Program  
CONTRACTOR: Water Resources International, Inc.  
CONSULTANTS: GeothermEX  
PREPARED BY: Bill R. Craddick/Clarence J. Mason  
APPROVED BY: \_\_\_\_\_

Operator

\_\_\_\_\_ Date

APPROVED BY: \_\_\_\_\_

Consultants

\_\_\_\_\_ Date

General Scope of Work:

1. Prepare access road and well site, mobilize drilling rig.
2. Drill a 26 inch hole and case with 22 inch casing to a depth of 68 feet.
3. Drill a 17-1/2 inch to 20 inch hole and case with 13-3/8 inch casing to depth of 1220+ feet.



4. Drill a 12-1/4 inch hole and case with 9-5/8 inch casing to a depth of 3800+ feet.
5. Drill a 8-1/2 inch hole to total depth of 7000+ feet, or as required by the operator.
6. Flow-test well, install geothermal well head, demobilize drill rig and restore drilling site.

A. SITE PREPARATION (WORK ORDER NO. 192-100)

1. Prepare access road, drill site, and reserve pit - per GEDCO Plan No. 7904.
2. Construct water reservoir (9000 BBL Capacity), and install liner.
3. Construct cellar per GEDCO Plan No. 7903.
4. Install "dead-men" (guy line anchors).

B. MOBILIZATION - (WORK ORDER NO. 192-200)

1. Mobilize WRII drilling rig #4.
2. Mobilize Cement Pumping Unit and Bulk Storage Unit.
3. Mobilize electric logging unit.

C. DRILLING PROGRAM, ALL MEASUREMENTS RKB - (WORK ORDER NO. 192-300)

Phase I - Conductor Hole

1. Drill a 12-1/4" pilot hole with mud to 178 feet. Start pilot hole by center punching inside existing 30 inch casing with 26 inch hole opener and 12-1/4 inch pilot bit.
2. Open 12-1/4 inch hole to 17-1/2 inch to 70 feet.
3. Open 17-1/2 inch hole to 26 inch to 68 feet.
4. Bail mud out of hole down to 68 feet.
5. Cut off 30 inch pipe at cellar floor and remove same.
6. Run 22 inch casing and cement. (Refer to casing and cementing programs).
7. Nipple up flow-line and air drilling head to 22 inch casing.

## Phase II - Surface Hole

1. Drill a 12-1/4 inch hole with air mist, depending on compressor availability, or mud (refer to drilling fluids program) to a depth of 800 feet or elevation plus 20 feet. If air mist is circulation media, change over to mud at 800 feet. Notify representative of State upon reaching 870 feet.
2. Bail hole until clear water is obtained. Catch three, one gallon samples. Turn over a one gallon sample to State representative.
3. Run wireline water probe to establish water level. Enter results on daily drilling report.
4. Run wireline temperature survey-top of water and bottom of hole and enter results on daily drilling report.
5. Finish drilling 12-1/4 inch "pilot hole" with mud to 13-3/8 inch casing depth of 1220+ feet. (Make 10 feet extra hole).
6. Open 12-1/4 inch pilot hole to 17-1/2 inch with air mist or mud to 1220+ feet plus 8 feet. If air mist is circulation media, change over to mud at top of water level (previously established). Continue drilling to 1240+ feet.
7. At this point, an attempt to establish full (100%) circulation with mud will be made - (refer to drilling fluids program on page 8). The results will determine the 13-3/8 inch casing, cementing method - (Conventional cementing or External cementing). If the external cementing method is deemed necessary, proceed to step #8. If not delete #8.
8. Open 17-1/2 inch hole to 20 inch with air mist or mud to 1220+ feet. If air mist is circulation media, change over to mud at top of water level.
9. Condition hole for logs.
10. Run logs - refer to Logging Program on page 9.
11. Condition hole for running casing.
12. Run 13-3/8 inch casing - refer to Casing Program on page 9.
13. Cement 13-3/8 inch casing - refer to Cementing Program on page 10. WOC time will be determined by retardation of cement.
14. Cut-off 22 inch casing at cellar floor.
15. Cut off 13-3/8 inch casing and nipple up as per GEDCO Plan No. 7902. Test the weld on 13-3/8 inch Braden Head before nipping up B.O.P. stack complete with chock manifold and kill lines.

16. Pressure test casing, choke manifold valve and flanges with blind rams closed -600 PSIG-30 min. Pressure test pipe rams and Hydril after starting in hole. 600 PSIG-30 min. All pressure tests to be witnessed by State.
17. Drill out with 12-1/4 inch Mill Tooth Bit and water, cement staging tools, if any. Pressure test casing (600 PSIG-30 min.) after drilling out each tool. Clean out to within 10 feet of casing shoe. Leave 10 feet of cement in casing. Circulate hole clean and pressure test entire casing string-600 PSIG-30 min.
18. Run cement Bond Log.
19. Remedial cementing, if necessary.

Phase III - Intermediate Hole

1. Drill out 10 feet cement, casing shoe and clean out to bottom of 12-1/4 inch hole with 12-1/4 inch rerun bit (Mill Tooth) by-passing all contaminated mud to reserve pit.
2. Drill a 12-1/4 inch hole with mud (refer to Drilling Fluids Program on Page 6), and TCI Bits to 9-5/8 inch casing depth, (casing depth to be determined by bottom hole temperature) and Lithology. Land casing in solid formation.
3. Condition mud and hole for logs (make "short trip" to check for fill).
4. Run logs - (refer to Logging Program on page 9).
5. Condition hole for running 9-5/8 inch casing.
6. Lay down drill pipe and drill collars.
7. Run 9-5/8 inch casing - (refer to casing program on page 9).
8. Cement 9-5/8 inch casing to surface - (refer to cementing program on page 10), WOC time to be determined by retardation of cement.
9. Cut off 9-5/8 inch casing, install thermal (pack-off) in Braden Head. Install expansion spool and nipple up as per GEDCO Plan No. 7902. Change pipe rams to 4 inch.
10. Pressure test casing, well head flanges, and choke manifold with blind rams closed. 1000 PSIG-30 min. (To be witnessed by State Representative).
11. Pick up 8-1/2 inch Mill Tooth Bit, 6-3/4 inch drill collars and 4 inch drill pipe.
12. Pressure test pipe rams and Hydril. 1000 PSIG-30 min.

13. Drill out with water all cementing staging tools, float collar, and cement to within 10 feet of casing shoe. Leave 10 feet cement in casing. Pressure test casing after drilling out each cement staging tool and after drilling out float collar and cement. (To be witnessed by State Representative). Circulate hole clean.
14. Run cement bond log.
15. Remedial cementing, if necessary.

#### Phase IV - Production Hole

1. Drill out cement and casing shoe with 8-1/2 inch rerun Mill Tooth Bit by-passing all contaminated mud to reserve pit.
2. Drill 8-1/2 inch hole with TCI Bits to total depth with mud.
3. Condition hole for logs.
4. Run logs - refer to Logging Program on page 9.

#### Phase V - Production Test

1. Displace mud in hole with water using 4 inch drill pipe (no collars) float Bit Sub and 8-1/2 inch bit at bottom of 9-5/8 inch casing.
2. Using high pressure air compressor, depress fluid in the hole to the bottom of the 9-5/8 inch casing. Shut in the well and let the fluid heat up to 100° C+. Release the pressure out of the choke line and flow the well.
3. Flow test well - (under direction of GeothermEx).
4. Kill/cool well with water.
5. Make trip with drill string to check depth and clean out to bottom. If hole stays open, proceed to step #6.
6. Lay down drill pipe and tools. NOTE: Continue to pump water down 9-5/8 inch casing during step #5 and #6 to assure well control. If hole does not stay open during flow-test, a slotted 7 inch liner will be considered.
7. Close 10 inch WKM Valve, remove B.O.P. stack and nipple up geothermal well head.

### D. DRILLING FLUIDS PROGRAM

#### Phase I - Conductor Hole

1. Spud-Mud, Water, Bentonite and Lime. Viscosity sufficient to clean hole.

### Phase II - Surface Hole

1. Drilling blind with mud, use fresh water/gel mud with the following properties, and maintain:
  - a. PH-8.5-9.5 with caustic soda - ADD to make up water.
  - b. WT.-below 9.3 lbs. per gallon.
  - c. Vis.-50/80 (as needed) with Bentonite.
  - d. W.L.-No control.
  - e. No samples - drill cuttings.
2. Drilling with circulation or partial circulation, use fresh water, gel/chemical, low solids mud with the following properties, and maintain:
  - a. PH-8.5-9.5 with caustic soda - ADD to make up water.
  - b. WT.-below 9.3 lbs. per gallon with water - ADDED at shale shaker.
  - c. Vis.-45/80 (as needed) with Bentonite.
  - d. W.L.-10/15 cc (100 PSIG-30 min.) with CMC.
  - e. Gel strengths-Int.-0, 10 min.-10/20 with Tannex - ADD at flow-line through chemical barrel.
  - f. Sand content-below 1% of volume.
  - g. LCM-5/15% as needed to maintain circulation.
  - h. Samples: 2 sets, 10 feet intervals, W/D.
3. Drilling with air mist (using 1-1050 CFM Compressor).
  - a. Inject 12/15 GPM of air foam mix into air stream. Air foam mix formula and procedure for mixing in General Drilling Instructions.
  - b. Samples: 2 sets, 10 feet intervals, W/D.

### Phase III - Intermediate Hole

1. Use fresh water gel/chemical low solids mud with following properties, and maintain:
  - a. PH-10.5-11.5 with caustic soda - each tour will maintain treatment through chemical barrel at flow-line.
  - b. WT.-below 9.3 lbs. per gallon with water at flow-line.

- c. Vis.-45/50 sec. (1500 cc in-1 qt. out with marsh funnel).
- d. W.L.-below 10 cc (100 PSIG-30 min.) with CMC - ADD slowly through hopper with bentonite).
- e. Gel strengths-Int.-0, 10 min.-0/5 with CC-16 depending on loss circulation.
- f. Sand content-below 1% of volume.
- g. LCM-5% or as needed to maintain circulation.
- h. Samples: 2 sets, 10 feet intervals, W/D.

#### Phase IV - Production Hole

1. Use fresh water gel/chemical low solids mud with following properties, and maintain:
  - a. PH-10.5-11.5 with caustic soda - (each tour will maintain treatment at flow-line through chemical barrel).
  - b. WT.-below 9.3 lbs. per gallon with water at flow-line.
  - c. Vis.-45/50 sec. with bentonite.
  - d. W.L.-below 8 cc (100 PSIG-30 min.) with high viscosity CMC. ADD through hopper slowly along with bentontie.
  - e. Gel strengths-Int.-0 10 min.-0 with Spersene and XP-20.
  - f. Sand content-below 1% of volume.
  - g. LCM none-unless partial loss circulation occurs.
  - h. Samples: 2 sets, 10 feet intervals, W/D.
2. Procedure to establish full circulation at completion of 17-1/2 inch Surface Hole, Phase II.
  - a. Pull out hole.
  - b. Establish fluid level with wireline fluid probe.
  - c. Go in hole with drill pipe (open-ended) to within 50 feet of bottom.
  - d. Pump in through drill pipe previously mixed mud (slug) with heavy concentration of LCM (15/20%). Monitor fluid level while pumping. Continue to pump mud slug, if fluid is rising as much as 65% or more of input until circulation is established. If fluid rise of 65% or more is not achieved, stop pumping and pull drill pipe up above mud

level. Wait two hours and monitor fluid level or until fluid level stabilizes, and then repeat procedure. NOTE: Watch for bridges or fill, when running drill pipe back in hole. Position bottom of drill pipe 50 feet above fill, for repeating procedure. After several attempts with negative results, attempts to establish full circulation will be abandoned.

- e. If full circulation is established, continue to circulate by passing shaker screen for three full circulations.
- f. Trip out with drill pipe-pick up one double of drill collars (8 inch) and bit sub (no float), (remove jets from bit). Go in hole and clean out to bottom, closely monitoring pit levels.
- g. If full circulation is maintained, reduce concentration of LCM, closely monitoring pit levels, to 5% by volume, by screening out excess LCM. If full circulation is not maintained severity of loss circulation will determine if further attempts should be made.

E. ELECTRIC LOGGING PROGRAM - (WORK ORDER NO. 192-300)

Phase I - None

Phase II - Open hole logs as required by State drilling permit. C.B.L. after 13-3/8 inch casing is cemented and cleaned out to within 10 feet of shoe.

Phase III - Open hole logs-FDC, CNL, BNC, IES, and HRT log. C.B.L. and casing caliper after 9-5/8 inch casing is cemented and cleaned out of within 10 feet of shoe.

Phase IV - HRT, Kuster Geothermograph, CNL, FDC, BHC and Sonic Log.

F. CASING PROGRAM - (WORK ORDER NO. 192-300)

Phase I - 68 feet, 22 inches x 3/8 inch wall welded casing, set on bottom of 26 inch hole. Bevel bottom joint.

Phase II - 1220+ feet -13-3/8 inch, J-55-54.50 lbs. feet. Buttress thread casing set 2 feet off bottom of 17-1/2 inch hole. Casing strings make up will be determined by cement method. Weld shoe and tack weld bottom four couplings (top and bottom). Torque joints to API specs.

Phase III - 3800+ (actual depth to be determined by hole temperature) 9-5/8 inch, J-55, 40 lbs./feet buttress thread casing. Set 3 feet off bottom to allow for thermal expansion. Casing string will

consist of guide shoe, automatic full up float collar, centralizers 10 feet above shoe and on every third coupling to surface cement staging tool or tools positioned at depths determined by hole conditions and cement baskets on joint below tools. Weld only on float equipment, cement staging tools and bottom four couplings. (Tack weld bottom of couplings). NOTE: 9-5/8 inch casing will have to be centered in 13-3/8 inch Braden Head to assure proper sealing of thermal pack off element. Pick up B.O.P. stack for visual inspection before cement is brought to surface.

Phase IV - Evaluation of flow-test will determine the necessity of a 7 inch slotted liner.

G. CEMENTING PROGRAM - (WORK ORDER NO. 192-300)

Phase I - Cement to cellar floor with ready mix cement consisting of a 1 to 1 mixture of rock-sand and cement with 6 gallons of water per sack (94 lbs.) of cement and 2% calcium chloride, to be poured from surface. Have 100% excess on location. Wait 30 minutes after initial pour in annulus (1 yard) then proceed to pour, monitoring rise in annulus and inside 22 inch casing. (Stop pour, if cement is going down hole or coming up inside 22 inch casing. Wait 30 minutes and continue pour).

Phase II - Cement to cellar floor with thermal cement (to be blended on location under the direction of Howco representative) by method determined by hole condition.

1. Conventional multi-stage cementing.

2. External cementing.

- a. Prior to running 13-3/8 inch casing, run two strings (color coded) of 1.6 inch tubing to a predetermined depth and sling off on sub-base with appropriate slings and load cells. Monitoring string to be "bull nosed" (solid) and filled with water. Cementing string to be "bull nosed" with 1/2 inch hole in bottom and slotted with 1 inch x 1/2 inch slots at 90° 6 inch apart over 3 feet interval above "bull nosed" land tubing strings above rotary table on spider and slips with tubing clamp after 13-3/8 inch casing is installed. Cement Stage #1 - Conventionally down 13-3/8 inch casing (predetermined volume) monitoring fluid rise and temperature in cementing string (1.6 inch tubing). After wiper plug is pumped down and cement rise is determined, pull both tubing strings above cement top (60 feet) with WRII crane. Clear cementing string with water, WOC until sample is hard enough to assure tagging cement top with tubing. Stage #2 - Tag top of the cement with the cementing string, and then pick up 2 feet. Lower monitoring string to approximately 30 feet above top of the cement. Clear



cementing string with water or flo-check. Pump cement down cementing string, monitoring cement rise (temperature) in monitoring string. If 50% or more "fill up" is being achieved, continue cementing until 200 feet or "fill-up" is obtained. Shut down cementing pump. Continue to monitor temperature for "fall back" while pulling cementing string up to position bottom of tubing 30 feet below top of cement. If "fall back" does not occur or ceases to fall back, pull monitoring string up to top of cement and continue cementing operations until another 200 feet of fill up is obtained or fill up drops below 50% of input. If latter occurs, pull both tubing strings up above the cement. Clear cementing string with water and WOC. Repeat Stage #2 until cement reaches cellar floor.

Phase III - Cement to surface Braden Head Valve with thermal cement, blended on location under the direction of Howco representative, conventional multi-stage cementing-pulling 260,000 lbs. and hold on casing after Stage #1.

H. CORING AND TESTING - (WORK ORDER NO. 192-300)

Coring intervals to be determined by GeothermEx and Operator.

I. DEVIATION SURVEYS - (WORK ORDER NO. 192-300)

Every 120 feet of new drilled hole or as necessary to control well bore deviation. Wing stabilizers or roller reamers positioned in the drill collar string may be necessary in the 8-1/2 inch hole to control well bore deviation and/or differential sticking of the drill collars.

J. WELL RECORDS - To be filed with the State.

# GEOHERMAL EXPLORATION & DEVELOPMENT CORP.

PACIFIC OPERATIONS

79 NOV 13 A 9: 03

November 8, 1979

DIV. OF WATER &  
LAND DEVELOPMENT

State of Hawaii  
Department of Land and Natural Resources  
Division of Water and Land Development  
P. O. Box 373  
Honolulu, Hawaii 96809

Gentlemen:

In accordance with Regulations on Geothermal Resources and Drilling in Hawaii, Regulation 8, Rule 9, we hereby wish to make application for a drilling permit.

- a) Applicant - Geothermal Exploration & Development Corp. ("GEDCO")  
2828 Paa Street, Suite 2085  
Honolulu, Hawaii 96819

Owner of mineral rights

Harold Ashida  
C/o Hiromu Yamanaka  
116 Kamehameha Avenue  
Hilo, Hawaii 96720

Mineral rights leased to Geothermal Exploration & Development Corp.  
being portion of 120 acre lease filed with Bureau of Conveyances  
#76-46679, liber 11469, p.c. 232-238.

- b) Designation of Well - Opihikao No. 1  
c) Plot Plan - As attached. Site elevation 802.9.  
d) Purpose - exploratory geothermal well to determine presence of a commercial source at approximately 6500 ft. depth.  
e) Description of Program - attached.  
f) Bond - GEDCO hereby agrees to file a bond meeting requirement of Rule 9.4 within ten (10) days after notice of approval of permit.

*\$10000 Cash Deposited*

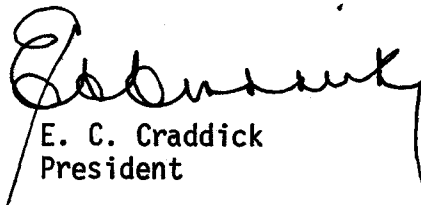
State of Hawaii  
Dept. of Land & Natural Resources  
Div. of Water & Land Development  
Page Two

- g) Regulations - GEDCO hereby confirms its intent to perform all work in accordance with the Rules and Regulations and all federal, state and county requirements.

At the present time we are planning on commencement December 1979, and completing by approximately March 1980. We shall advise you as soon as our schedule is firm. The driller would be Water Resources International, Inc., supervised by Mr. Bill Craddick.

Very truly yours,

GEOHERMAL EXPLORATION &  
DEVELOPMENT CORP.



E. C. Craddick  
President

ECC/sm

Enclosures: Proposed Drilling Program Procedure dtd. 11/08/79 (Rev.)  
Site Plan  
Well Design Drawing dtd. 12/29/78  
Land Use Commission Approval ltrs. dtd. 7/21/78  
Check for \$100.00 dtd. 10/26/79 - for Filing Fee.

cc: Mr. Bill Craddick - WRII, Hilo

PROPOSED DRILLING PROGRAM - PROCEDURE:

LOCATION: Opihikao, Hawaii

1. Prepare road and location including an 8' x 9' x 10' cemented cellar and water storage facility.
2. Move in drilling rig.
3. Drill 26" hole to 50' below ground level. Run 20", 3/8" wall Conductor to 50' below ground level and cement with ready-mix to cellar floor.
4. Drill 17-1/2" hole to 1200' with thick gel-water mud. Plug off lost circulation zones as encountered with LCM, puka plug, or cement as necessary.
5. Run MRT's every three (3) hours.
6. Run deviation surveys every 500' - more frequently if need indicated.
7. Run 13-3/8", 54.5#, K-55 Buttress casing to 1200' or as determined. Use float shoe and float collar on casing. Run centralizers 15', 80', and 200' above shoe. Weld shoe solid and tack-weld top and bottom of bottom 4 collars. Cement to surface with Class B or G cement pre-mixed with 1.0 c.f./sack perlite, 3% gel, 40% silica flour, and .5% CFR-2 friction reducer. Calculate 100% excess slurry. Use top plug only with plug-holding cement head. Bump plug on float collar. Do outside job if cement returns do not reach surface. Use multiple stage cementer if required by field conditions.
8. After WOC land 13-3/8" casing. Weld on 12" Series 900, WKM geothermal wellhead. Test weld with 1000 psig. Install 12" Series 400 valve, 12" Series 900 Shaffer double hydraulic gate and Hydril GK BOPE. Install Grant rotating head. Install drilling spool with choke and kill lines. All BOPE to have high temperature packing elements. Test each preventer, casing, Kelly cock, valves, including check valve in kill line and blowdown line valves to 1000 psig for 5-minutes. Notify the Chairman of the Hawaii Board of Land and Natural Resources well enough in advance of BOPE test so that he or his designated representative can travel to the site and witness the test. Enter test results on the tour sheet.
8. Drill 12-1/4" hole to 4000' (or as determined) using water-base gel mud treated to maintain viscosity at about 45-seconds and water loss below 20cc in 30-minutes. Do not use weighting material unless flow or sloughing requires heavier mud. Seal off lost

Proposed Drilling Program - Procedure - Cont.

- circulation as encountered with LCM or cement plugs. Above mud return temperature of 125°F, add lignites as necessary to prevent gelation of mud while maintaining proper mud weight. This step should especially be taken prior to running of 9-5/8" casing.
9. Run temperature log when drilling breaks are encountered and on bit changes.
  10. Run deviation survey every 500', or every nearest bit change (or more frequently if need indicated). Run multi-shot directional survey if deemed necessary.
  11. Run 9-5/8", 40#, K-55 Buttress casing to 4000'. Use float shoe and float collar on first joint. Use centralizers 15', 80', and 200' above shoe. Weld shoe solid and tack-weld top and bottom of bottom 4 collars. Cement 9-5/8" casing to surface with Class B or G cement pre-mixed with 1.0 c.f./sack perlite, 3% gel, 40% silica flour, .5% CFR-2 friction reducer, and .4% HR-5 retarder. Calculate 100% excess cement. Do outside job if cement returns do not reach surface. Use multiple stage cementer if required by field conditions.
  12. Land 9-5/8" casing in WKM expansion spool after 24-hour WOC. Install 10", Series 600 WKM master valve above 9-5/8" casing expansion spool. Install hydraulic 12" Series 900 double Shaffer and Hydril BOPE. Install Grant rotating head. Install drilling spool with choke and kill lines. All equipment to have high temperature packing elements. Test all BOPE, casing, and valves with 1000 psig for 5-minutes each. Notify the Chairman of the Hawaii Board of Land and Natural Resources well enough in advance of BOPE test so that he or his designated representative can travel to the site and witness the test. Enter test results on tour sheets.
  13. Run cement bond gamma neutron logs and temperature logs before drilling out 9-5/8" casing shoe.
  14. Drill 8-1/2" hole to 6500' or other TD as determined using water, or if hole conditions requires use water-base gel mud, treated to maintain viscosity at about 45-seconds and water loss below 20cc in 30-minutes. Do not use weighting material unless formation flow or sloughing requires heavier mud.
  15. While drilling with water or mud below the 9-5/8" casing, whenever drilling rate recorder (either on the floor or as noted by mud loggers) indicates a significant and sudden increase in penetration rate, the well kicks gas, lost circulation occurs, a test should be made through the choke line. Well stability should first be insured. The drill assembly should be raised above the zone of investigation, if safely possible. The flow should be vented through the choke

Proposed Drilling Program - Procedure - Cont.

manifold to the sump. Allowances should be made for thermal expansion of the wellhead inside the substructure of the rig, so that kill lines or valves stems will not be crimped. Run flow test and record wellhead pressures and temperatures, and lip pressures every one-half minute for the first 10-minutes of flow until flow has stabilized and then every minute for an additional 15-minutes unless the test must be terminated for safety reasons.

16. Run MRT's when drilling breaks are encountered and on bit changes.
17. Run deviation survey every 500', or every nearest bit change (or more frequently if need indicated). Run multi-shot directional survey from 9-5/8" casing shoe to TD if deemed necessary.
18. Log open hole to TD. [IES, HRT, Temperature (Kuster)], Pressure (Kuster), CNL, FDC, and BHC Sonic, hole conditions and temperatures permitting).
19. Flow test potential zones of interest, and complete or abandon well as results dictate.
20. Each drilling crew is to have one simulated blow-out drill per week with the drill entered on the tour sheets. Limit drills to 15-minutes. At no time during a blow-out drill is mud to be actually pumped into the hole with any preventer closed.
21. Have a core barrel on location for use if needed.
22. Drilling rig is to have a kill line with check valve, fill-up line, and blowdown line equipped with adjustable choke, and 4" full opening manifold to either pits or sump. Kill line to be 2", 3000 psig WP or better.
23. Run drill pipe float valve in 8-1/2" hole and keep a "wet plug" with valve in open position on rig floor at all times.
24. Keep LCM, Lignite, Puka Plug, Cane Fiber, and Gel on location.
25. Take all measurements from top KB.
26. Keep hole full at all times.
27. Check operation of BOPE each round trip or daily whichever occurs first.

WRC/sm-11/08/79 (Revised)

Ashtada #1 / ~~OPTIMIZED~~ EXPL. WELL  
GEOTHERMAL

~ 800' Elev.  
+ 92.9'

CEMENT  
CELLAR

B.O.P. ON 9 $\frac{1}{8}$ "

20" CONDUCTION

50' Depth

13 $\frac{3}{8}$ " SURFACE.

9 $\frac{5}{8}$ " INTERMEDIATE.

HEAT RESISTANT  
GROUT

STATIC WATER LEVEL  
APPROX 800' Depth.

1200' Depth

4000' Depth

8 $\frac{1}{2}$ " OPEN PRODUCTION

6500' Depth

GEICO 12/29/80



DEPARTMENT OF PLANNING  
AND ECONOMIC DEVELOPMENT

• • •  
**LAND USE COMMISSION**

Suite 1795, Pacific Trade Center, 190 S. King Street, Honolulu, Hawaii 96813

GEORGE R. ARIYOSHI  
Governor

CHARLES W. DUKE  
Chairman

SHINICHI NAKAGAWA  
Vice Chairman

July 21, 1978

COMMISSION MEMBERS:

James Carras  
Colette Machado  
Shinsei Miyasato  
Mitsuo Oura  
George Pascua  
Carol Whitesell  
Edward Yanai

GORDAN FURUTANI  
Executive Officer

Mr. E. C. Craddick, President  
Geothermal Exploration and  
Development Corporation  
2828 Paa Street, Suite 2085  
Honolulu, Hawaii 96819


Dear Mr. Craddick:

The original of the attached letter is on file in the office of the Hawaii County Planning Department, 25 Aupuni Street, Hilo, Hawaii.

Please be advised that failure to comply with any of the delineated conditions of approval, particularly those relating to time, shall be reason for termination of the Special Permit. The Land Use Commission will not consider any request for time extension which is filed after the stipulated commencement or expiration dates.

A copy of the staff memorandum is herewith enclosed for your information. The Land Use Commission's Decision and Order on SP77-265 will be forwarded to you at a later date.

Sincerely,

  
GORDAN Y. FURUTANI  
Executive Officer

Encls.

RECEIVED  
JUL 21 1978

WATER RESOURCES  
INTERNATIONAL, INC.



State of Hawaii  
LAND USE COMMISSION  
Suite 1795, Pacific Trade Center  
190 South King Street  
Honolulu, Hawaii 96810

July 21, 1978

Hawaii Planning Commission  
25 Aupuni Street  
Hilo, Hawaii 96720

Attention: Mr. Sidney Fuke, Planning Director

Gentlemen:

At its meeting on July 18, 1978, the Land Use Commission voted to approve a request by Geothermal Exploration and Development Corporation for a one-year time extension to Condition No. 4 of Special Permit 77-265 to commence drilling of the first well on approximately 120 acres of land situated within the State Land Use Agricultural District at Opihikao, Puna, Hawaii, Tax Map Key 1-3-1: portions of 24 and 25.

Approval of this extension is subject to the conditions imposed by the Hawaii County Planning Commission. Please be advised that the petitioner's failure to comply with any of the delineated conditions of approval, particularly those relating to time, shall be reason for termination of the Special Permit. The Land Use Commission will not consider any request for time extension which is filed after the stipulated commencement or expiration dates.

A copy of the staff memorandum is herewith enclosed for your information. The Land Use Commission's Decision and Order on SP77-265 will be forwarded to you at a later date.

Sincerely,



GORDAN Y. FURUTANI  
Executive Officer

Encl. ✓

cc: ✓ Geothermal Exploration &  
Development Corp.

STATE OF HAWAII  
LAND USE COMMISSION

MEMORANDUM

TO: Land Use Commission      DATE: July 18, 1978  
FROM: Staff  
SUBJECT: SP77-265 - Geothermal Exploration and Development Corporation (Time Extension)

The petitioner, Geothermal Exploration and Development Corporation, is requesting a one year time extension to Condition No. 4 of Special Permit 77-265. The permit was approved by the Land Use Commission on July 14, 1977, to allow the drilling of exploratory geothermal wells at Opihikao, Puna, Hawaii, Tax Map Key 1-3-1: portions of 24 and 25.

The subject property is located on the northwestern, or Pahoa, side of Opihikao Road, approximately 2.5 miles from the junction of Opihikao Road and the Pahoa-Kalapana Road in Opihikao. The area where drilling is proposed to take place consists of two land parcels with a combined area of approximately 120 acres. One of the subject parcels is owned by Vern Yamanaka and the other by Harold Ashida. The petitioner has leased the geothermal rights from the property owners. Within the 120-acre area the petitioner has identified six (6) possible drilling locations.

Condition No. 4 of the Special Permit states: "That the drilling of the first well shall commence within one (1) year from the effective date of approval of the Special Permit." The petitioner is now requesting an additional year to commence drilling.

Delay in the petitioner's drilling schedule has been due to the delay experienced by the Board of Land and Natural Resources in the formulation and adoption of regulations concerning geothermal resource development. Condition No. 1 of the Special Permit stated: "That prior to commencement of any operation, the petitioner or its authorized representative(s) shall receive approval from the State Board of Land and Natural Resources to conduct the proposed project." Board approval of

the project was stalled until regulations governing geothermal resource development were developed and adopted. These regulations were formally adopted by the Land Board on March 10, 1978 and became effective on May 19, 1978. As a result of the delay, the petitioner filed a request for time extension with the Hawaii County Planning Department on May 12, 1978.

In support of the time extension request, the petitioner has in part stated the following:

"The above permit was approved in July 14, 1977 for a period of three (3) years, and we would be in a position to proceed drilling within one (1) year, assuming that the Rules and Regulations governing geothermal would shortly be adopted. These regulations have still not been published and put into effect, however, this is expected by June 1978.

"We, therefore, respectfully request that the commencement of drilling requirement be extended for one (1) year in order to allow time for reforming of our drilling and funding program which also expired because of the delay in adoption of the geothermal rules and regulations.

"...We have completed the site work and access roadway improvements, expending approximately \$50,000, therefore, in that sense we have begun operations. The actual set up of rig equipment and drilling of the well, however, must be delayed for new funding..."

The time extension request was discussed by the Hawaii Planning Commission on June 15, 1978. At that time, a representative of the petitioner spoke in support of the request. No other persons testified concerning the proposed time extension. For the Commission's information, the meeting minutes of June 15, 1978 have been attached.

On June 15, 1978, the Hawaii Planning Commission voted to recommend favorable consideration of the one year time extension to the Land Use Commission based on the following:

"The Commission voted to send a favorable recommendation to the State Land Use Commission since they felt that the request is a reasonable one and its approval will not be contrary to the Special Permit. The petitioner is subject not only to the State Land Use Law and Regulations but also to the regulatory functions of the Board of Land and Natural Resources,

specifically in terms of the drilling of the geothermal resources. The Commission felt that the delay in the adoption of these rules and regulations has caused a delay in the petitioner's ability to meet the time requirements of the Special Permit. As a result, the commencement of drilling the first well has not been due to the petitioner's own actions.

"In addition, the Special Permit was granted for a three-year period. At this time, the petitioner is not requesting an extension of the Special Permit's overall life but of an internal time condition. The extension of this internal time condition is not expected to be contrary to the Special Permit in that the three-year limitation is still in effect."

The favorable recommendation was subject to the condition that all other conditions of the Special Permit be complied with. It was further stated by the Planning Commission that: "Should any of these conditions not be met, action to nullify the Special Permit may be initiated."

For the Commission's information, the original conditions of the Special Permit included the following:

- "1. That prior to commencement of any operation, the petitioner or its authorized representative(s) shall receive approval from the State Board of Land and Natural Resources to conduct the proposed project.
- "2. That the petitioner/representative(s) shall secure a building permit for all structures which are to be constructed on the subject property.
- "3. That prior to commencement of any drilling activity, the petitioner/representative(s) shall submit plans to the Planning Department showing the location of the well site(s) to be drilled.
- "4. That the drilling of the first well shall commence within one (1) year from the effective date of approval of the Special Permit.
- "5. That the length of this Special Permit shall be for a period not to exceed three (3) years from the effective date of the Special Permit.
- "6. That the rules, regulations and requirements of the State Department of Health shall be complied with.

- "7. That the petitioner/representative(s) shall be responsible to assure that every precaution is taken to reduce any nuisances, whether it be noise or fumes, which may affect the residents and properties in the immediate area. Should it be determined that these precautionary measures are not being applied, the Planning Department is authorized to cease any further activity in the area.
- "8. That upon termination of the operation or if the petitioner determined that the project is not feasible, all structures erected shall be dismantled and removed from the site(s).
- "9. That all other applicable rules and regulations shall be complied with.
- "10. That the petitioner shall be responsible for close monitoring of the environmental effects of the proposed project under varying conditions."

.. In addition, the Planning Commission pointed out that any further development beyond the drilling and testing shall require another Special Permit and that: "Should any of the foregoing conditions not be met, the Special Permit may be deemed null and void."

# **DIMITT DIRECTIONAL DRILLING**

WATER RESOURCES INTERNATIONAL

LANIPUNA #1 REDRILL

PAHOA, HAWAII

June 26, 1983

## **FILLMORE**

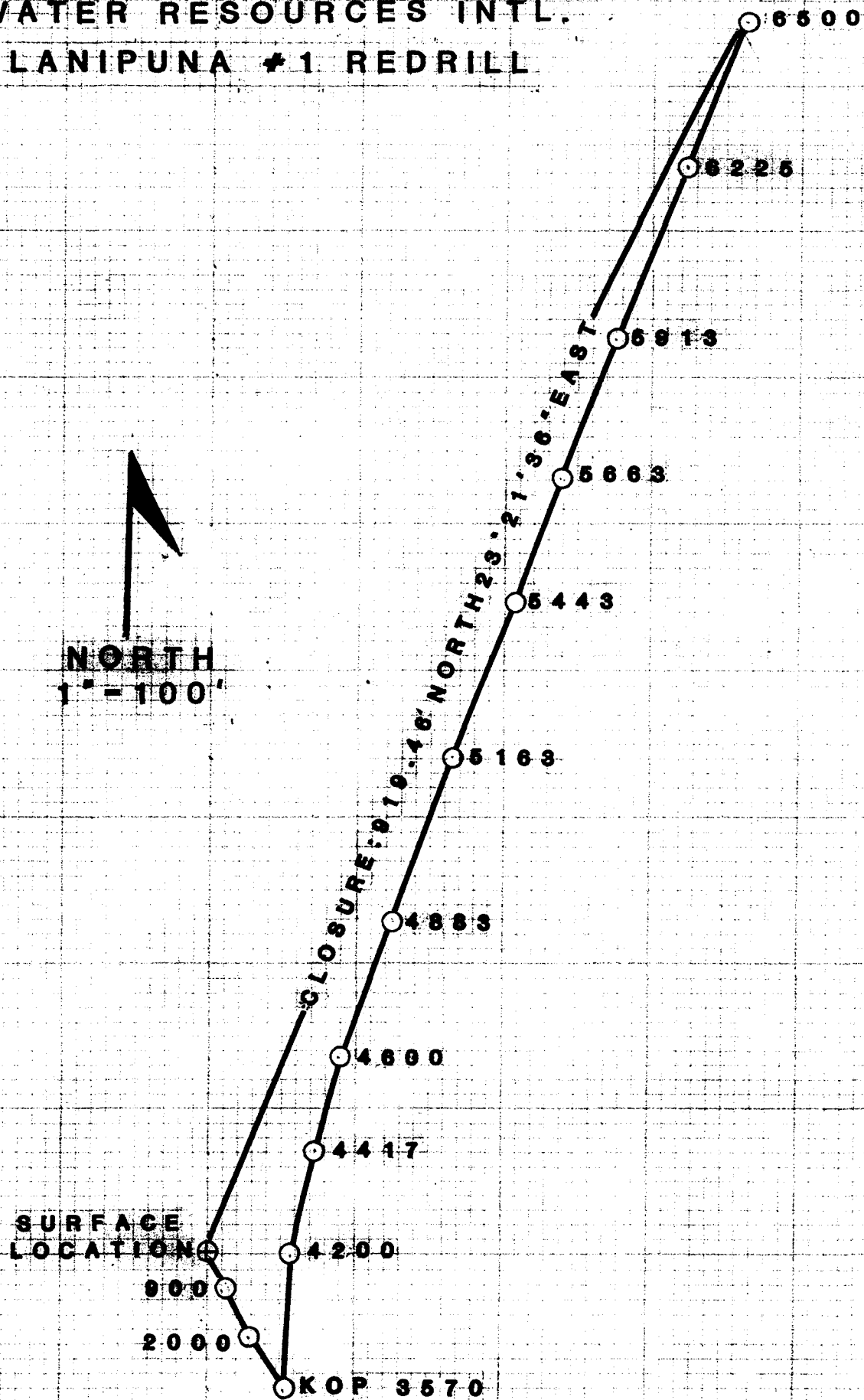
(805) 524-0606 / (707) 528-7988

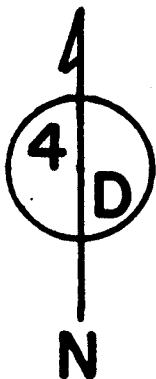
P.O. BOX 712

FILLMORE, CALIFORNIA 93015

# WATER RESOURCES INTL.

## LANIPUNA #1 REDRILL





# DAVE DIMITT DIRECTIONAL DRILLING

COMPANY WATER RESOURCES INTERNATIONAL

WELL LANIPUNA #1 REDRILL

LOCATION PAHOA, HAWAII

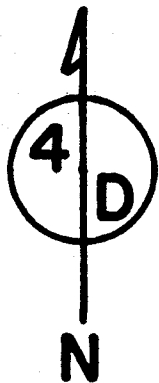
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						COORDINATES 100' TO 3250' TIED INTO SPERRY SUN 3250' TO 6500' PLOTTED STATION TO STATION					
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2	3570	1°30'	356825	8 38	S19E		91 30	50 61			
3	3581	0°30'	357925	0 10	N78E		91 32	50 71			
4	3612	2°15'	361023	1 22	N05E		90 10	50 72			
5	3644	4°15'	364214	2 37	N05E		87 73	50 74			
6	3702	6°	369982	6 06	N14E		81 85	52 21			
7	3795	7°	379213	11 33	N11E		70 73	54 37			
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9	3981	8°30'	397626	13 75	N20E		46 73	63 36			
10	4021	9°	401577	6 26	N09E		40 55	64 34			
11	4045	9°45'	403942	4 06	NORTH		36 49	64 34			
12	4076	11°45'	406977	6 31	N08W		30 24	63 46			
13	4135	13°45'	412708	14 02	N11W		16 48	60 78			
14	4176	14°	416686	9 92	N14W		6 85	58 38			
15	4200	14°15'	419012	5 91	N03W		0 95	58 07			
16	4231	16°15'	421988	8 67	N02E	7 71		58 37			
17	4264	18°15'	425122	10 33	N02E	18 03		58 73			
18	4295	20°15'	428030	10 73	N08E	28 66		60 22			
19	4322	20°45'	430555	9 57	N13E	37 98		62 37			
20	4417	21°30'	439394	34 82	N15E	71 61		71 38			

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# DAVE DIMITT DIRECTIONAL DRILLING

COMPANY WATER RESOURCES INTERNATIONAL

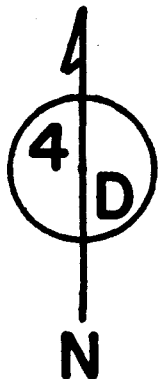
WELL LANIPUNA #1 REDRILL

LOCATION PAHOA, HAWAII

DATE JUNE 26, 1983

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23	4696	20°30'	4654 99	33 62	N23E	164 66		102 90			
24	4790	20°45'	4742 89	33 31	N18E	196 34		113 19			
25	4883	22°	4829 12	34 84	N20E	229 08		125 11			
26	4977	24°15'	4914 83	38 61	N20E	265 36		138 32			
27	5070	26°	4998 42	40 77	N20E	303 67		152 26		EXTRAPOLATE	
28	5163	25°30'	5082 36	40 04	N20E	341 30		165 95			
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32	5537	23°45'	5423 69	37 86	N21E	484 27		220 10			
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34	5787	23°45'	5652 52	49 94	N22E	577 95		257 00		EXTRAPOLATE	
35	5913	24°	5767 63	51 25	N22E	625 47		276 20		EXTRAPOLATE	
36	6038	24°	5881 82	50 84	N22E	672 61		295 24		EXTRAPOLATE	
37	6225	23°45'	6052 98	75 31	N22E	742 44		323 45		EXTRAPOLATE	
38	6500	23°30'	6305 17	109 66	N22E	844 11		364 53		EXTRAPOLATE	
										CLOSURE: 919.46' NORTH 23°21'36" EAST	

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# DAVE DIMITT DIRECTIONAL DRILLING

COMPANY WATER RESOURCES INTERNATIONAL

WELL LANIPUNA #1 REDRILL

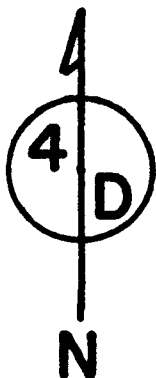
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19	4322	20°45'			N13E						
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CHECKED BY

Km



# DAVE DIMITT DIRECTIONAL DRILLING

COMPANY WATER RESOURCES INTERNATIONAL

WELL LANIPUNA # 1 REDRILL

LOCATION PAHOA, HAWAII

DATE JUNE 26, 1983

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CLOSURE:																		
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23°21'36" EAST																		

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WATER RESOURCES INTERNATIONAL

LANIPUNA #1 REDRILL

PAHOA, HAWAII

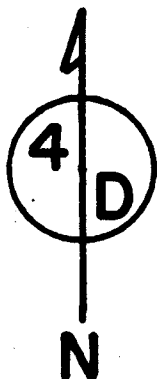
JUNE 26, 1983

## **FILLMORE**

(805) 524-0606 / (707) 528-7988

P.O. BOX 712

FILLMORE, CALIFORNIA 93015



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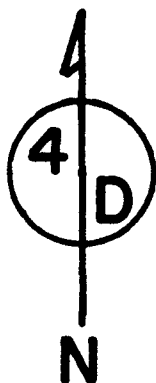
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COMPANY WATER RESOURCES INTERNATIONAL

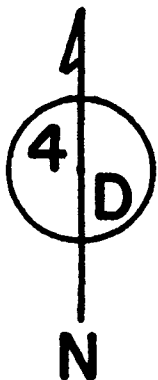
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										CLOSURE: 919.46' NORTH 23°21'36" EAST	

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COMPANY WATER RESOURCES INTERNATIONAL

WELL LANIPUNA #1 REDRILL

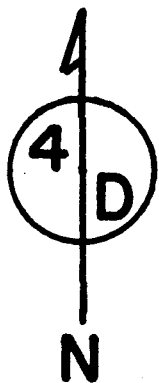
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12	4076	11°45'			N08W						
13	4135	13°45'			N11W						
14	4176	14°			N14W						
15	4200	14°15'			N03W						
16	4231	16°15'			N02E						
17	4264	18°15'			N02E						
18	4295	20°15'			N08E						
19	4322	20°45'			N13E						
20	4417	21°30'			N15E						

CHECKED BY

Km



# DAVE DIMITT DIRECTIONAL DRILLING

COMPANY WATER RESOURCES INTERNATIONAL

WELL LANIPUNA # 1 REDRILL

LOCATION PAHOA, HAWAII

DATE JUNE 26, 1983

STA. Nº	MEASURED DEPTH	DRIFT ANGLE	VERTICAL DEPTH	DEV.	DRIFT DIRECTION	RECTANGULAR COORDINATES								REMARKS	SECT.
						NORTH		SOUTH		EAST		WEST			
21	4508	20°45'				N19E									
22	4600	20°45'				N14E									
23	4696	20°30'				N23E									
24	4790	20°45'				N18E									
25	4883	22°				N20E									
26	4977	24°15'				N20E									
27	5070	26°				N20E								EXTRAPOLATE	
28	5163	25°30'				N20E									
29	5257	24°45'				N20E									
30	5351	24°15'				N21E									
31	5443	23°45'				N21E								EXTRAPOLATE	
32	5537	23°45'				N21E									
33	5663	23°45'				N21E								EXTRAPOLATE	
34	5787	23°45'				N22E								EXTRAPOLATE	
35	5913	24°				N22E								EXTRAPOLATE	
36	6038	24°				N22E								EXTRAPOLATE	
37	6225	23°45'				N22E								EXTRAPOLATE	
38	6500	23°30'				N22E								EXTRAPOLATE	
CLOSURE: 919.46' NORTH 23°21'36" EAST															

CHECKED BY

KM



DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  
P. O. Box 373  
Honolulu, Hawaii 96809

RECEIVED

94 OCT 6 A8:06

DAILY REPORT

DIV. OF WATER &  
LAND DEVELOPMENT

Oct 3, 1994

Well No. Lower pump #1

Contractor Water Resources

DESCRIPTION OF ACTIVITIES

Crews Rigging Pump - Cut off wellhead -  
Cement plug 4' Below Gellum Floor - Wellhead  
And mark plate on casing.

Weather Good

Submitted by E. Oahu

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  
P. O. Box 373  
Honolulu, Hawaii 96809

DAILY REPORT

Oct. 1, 1994

Well No.

Lanipuna #1

Contractor

Water Resources

DESCRIPTION OF ACTIVITIES

Hang Open Kennel Drill pipe at 652' - Pumped  
125 Linear Footage of Cement - Cement in Place at  
7:15 pm - Work on Cement for 3 Hours - Tugged  
Top of Cement plug at 548' - Trapped out to  
155' - With OPEN KNOWN DRILL - Pumped 38 Sacks  
of Cement - Cement Back to Surface - Returns Back  
to Surface - Cement in Place at 11:10 pm - Preparing  
to Start Rigging Down and Out of Wellbore

Weather

Good

Submitted by

Am. Taha

DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  
P. O. Box 373  
Honolulu, Hawaii 96809

DAILY REPORT

Sept 30, 1994

Well No. Laniguan #1  
\_\_\_\_\_  
\_\_\_\_\_

Contractor Water Resources  
\_\_\_\_\_  
\_\_\_\_\_

DESCRIPTION OF ACTIVITIES

Pumped 250 Linear Footage of Cement with open ground  
Drill Pipe down at 3558' - Went on Cement for 3 hours -  
Cement in place at 5:05pm - Topped Top of Cement at 3268' -  
(235' of overlap with shoe at 3503) Displace hole with  
High Vis mud -

Weather \_\_\_\_\_

Submitted by \_\_\_\_\_

DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  
P. O. Box 373  
Honolulu, Hawaii 96809

DAILY REPORT

Sept 25, 1984

Well No. Lanipuna #1

Contractor Water Resources

DESCRIPTION OF ACTIVITIES

Ran Drill Pipe with Bit to 2400' - No Obstructions -  
Tripped out of Hole - Bore in with open known Drill Pipe  
to 3873' - Displaced Hole with High Vis mud - Pulled to  
3625' - Pumped 500' Linear Footage of Cement - Displaced with water -  
Pulled 400' of Pipe and Wasted one Cement - Cement In Place  
At 5:30 am - Tripped in with Drill Pipe and Jugged Top  
of Plug at 3602' (100' below shot at 3502') - Plans to pump  
250 Linear Footage of Cement - Tried to pump Cement - Found  
Drill Pipe Plugged with Cement - Tripped out of Hole to  
clean out string - Bore in with open known Drill Pipe -  
Ran out of Day Light

Weather Good

Submitted by E. Oak

DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  
P. O. Box 373  
Honolulu, Hawaii 96809

DAILY REPORT

Sept. 28, 1984

Well No. Laurelpoint 41

Contractor Water Resources

DESCRIPTION OF ACTIVITIES

Pressing up - Will be ready to pump  
Bottom Plug sometime tomorrow morning

Weather Good

Submitted by E. A. Ash

## DAILY REPORT

Contractor ~~BB~~ Wmarr Resources

Drillings      Rassing.-up.

Weather Cloudy

Submitted by

**Honolulu, Hawaii 96809**

Sept 24, 1994

Contractor Writing Resources

Rising up

**Weather** *Good*

Submitted by E. Paul

DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  
P. O. Box 373  
Honolulu, Hawaii 96809

DAILY REPORT

Sept. 23, 1994

Well No.

Lamipuna #1

Contractor

Brian Hall

DESCRIPTION OF ACTIVITIES

Crew working on Picking up and

Nippling up well head assembly

Weather

Good

Submitted by

[Signature]



JOHN WAIHEE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

P. O. BOX 373  
HONOLULU, HAWAII 96809

SEP 26 1994

KEITH W. AIUE, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

JOHN P. KEPPELER, II  
DONA L. HANAIE

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

Mr. Russell M. Gifford  
Vice President  
Barnwell Geothermal Corporation  
1100 Alakea Street, Suite 2900  
Honolulu, Hawaii 96813-2833

Dear Mr. Gifford:

LANIPUNA NO. 1 PLUG AND ABANDONMENT ACTIVITIES

Thank you for your September 22, 1994 letter notifying us of your September 23, 1994 start-up date for plugging and abandonment of geothermal well Lanipuna No. 1.

Please proceed as scheduled. Mr. Eric Tanaka will be on site to observe plugging and abandonment activities.

Your cooperation on this matter is certainly appreciated. Should you have any questions, please contact Mr. Gordon Akita at 587-0227.

Sincerely,

  
MANABU TAGOMORI  
Manager-Chief Engineer

JF:ek

bc: Eric Tanaka

## DIVISION OF WATER AND LAND DEVELOPMENT

FROM: W DATE: 11/13 FILE IN: 1

TO:      INIT:

PLEASE:

REMARKS:

☐ M. TAGOMORI  
☐ L. Nanbu  
☐ G. Akita  
☐ L. Chang  
☒ E. Lau  
☐ A. Monden  
☐ H. Young  
☐ T. Kam  
☐ G. Miyashiro  
☐ D. Lee  
☐ A. Yim

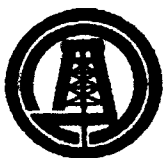
☐ See Me  
☐ Call  
☐ Review & Comment  
☐ Take Action  
☐ Investigate & Report  
☐ Draft Reply  
☒ Acknowledge Receipt  
☐ Type Draft  
☐ Type Final  
☐ Xerox \_\_\_\_\_ copies  
☐ File

**FOR YOUR:**

\_\_\_\_\_ R. LOUI  
\_\_\_\_\_ S. Kokubun

\_\_\_\_ Approval  
\_\_\_\_ Signature  
\_\_\_\_ Information

Pls call  
Eric T. to be  
on site to inspect  
job



Barnwell Industries, Inc. 1100 Alakea Street, Suite 2900, Honolulu, Hawaii 96813

## TELECOPIER COVER LETTER

Date: 9/22/94  
Number of pages including cover sheet: 2

To: Manabu Tagomori

Phone:

Fax phone: 587-0283

CC:

From: Russell M. Gifford

Phone: (808) 531-8400

Fax phone: (808) 531-7181

### REMARKS:

☐ Urgent

☐ For your review

☐ Reply ASAP

☐ Please comment

**BARNWELL GEOTHERMAL CORPORATION**

September 22, 1994

VIA TELECOPIER: (808) 548-6052

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

RE: LANI PUNA NO. 1 GEOTHERMAL WELL  
PLUGGING AND ABANDONMENT  
TMK: 1-3-45:34

Dear Mr. Tagomori:

Pursuant to item #3 of the Geothermal Well Abandonment Permit, Lani Puna No. 1, Barnwell Geothermal Corporation hereby notifies the State of Hawaii, Department of Land and Natural Resources that operations, for the plugging and abandonment for the above referenced well, will commence with mobilization of equipment September 23, 1994 with an approximate date of completion on or about October 14, 1994.

Sincerely,



Russell M. Gifford  
Vice President

RMG:rb

Enclosure

JOHN WAIHEE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

P. O. BOX 373  
HONOLULU, HAWAII 96809

SEP 13 1994

KEITH W. AHUE, CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES  
JOHN P. KEPPELER, II  
DONA L. HANAIIKE

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

Mr. Russell M. Gifford  
Vice President  
Barnwell Geothermal Corporation  
1100 Alakea Street  
Honolulu, Hawaii 96813-2833

Post-it™ Fax Note	7671	Date	9/28/94	# of pages	3
To	ERIC TANAKA	From	Team		
Co./Dept.	DONALD	Co.			
Phone #	933-4279	Phone #			
Fax #	933-4249	Fax #			

Dear Mr. Gifford:

Lanipuni No. 1 Geothermal Well Abandonment Permit

Enclosed for your attention and files is the Geothermal Well Abandonment Permit for Lanipuna No. 1.

Should you have any questions, please contact Mr. Gordon Akita of the Flood Control and Mineral Source Branch at 587-0227.

Sincerely,

MANABU TAGOMORI  
Manager-Chief Engineer

JF:ek  
Enc.



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

P. O. BOX 373  
HONOLULU, HAWAII 96809

KEITH W. AHUE, CHAIRPERSON  
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HISTORIC PRESERVATION  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

GEOHERMAL WELL ABANDONMENT PERMIT

LANIPUNA NO. 1  
Puna, Hawaii

TO: Barnwell Geothermal Corporation  
1100 Alakea Street  
Honolulu, Hawaii 96813

Your application dated September 1, 1994, for a permit to abandon Geothermal Well Lanipuna No. 1 is approved.

Well Designation: Lanipuna No. 1  
Location: TMK 1-3-9:07, Puna, Hawaii  
Landowner: Ho Schelmberg  
Leased to: Barnwell Geothermal Corporation (GRML R-3)  
Operator: Barnwell Geothermal Corporation  
Ground Elevation: 600 +/- ft. Above Mean Sea Level  
Total Depth: 6,447 ft.

Approval is granted in accordance with the Department's Administrative Rules, Chapter 13-183, HAR, and under the following conditions:

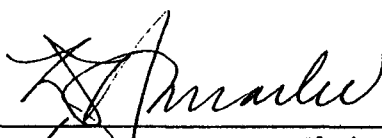
- (1) All work shall be performed in accordance with your Lanipuna No. 1 Plugging and Abandonment Plan, dated September 1, 1994, the Department's Administrative Rules (Chapters 13-183 and 13-184, HAR), and all other applicable Federal, State and County laws, ordinances, and regulations;
- (2) The permittee, his successors and assigns shall indemnify 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 permittee, assigns, officers, employees, contractors and agents under this permit or relating to or connected with the granting of this permit;
- (3) The permittee shall notify the Department, in writing, of the date of the start of work;

GEOHERMAL WELL ABANDONMENT PERMIT

Lanipuna No. 1

Page 2

- (4) All Blow-Out Prevention Equipment (BOPE) shall be pressure tested before commencing any operation on the well. The BOPE pressure test shall be witnessed and approved by a representative of the Department. The BOPE test results shall be reported on forms provided by the Department.
- (5) Except for the surface plug, all cement used for the plugging operations shall contain a high temperature resistant admix as set forth in Section 13-183-83 (a), HAR. In addition, good quality, heavy drilling fluid shall be used to fill all portions of the well above the bottom most plug, not plugged with cement;
- (6) Subsequent to plugging and abandonment operations, the casing shall be cut off at least six feet below ground surface and all concrete cellars and other structures (e.g., fencing) removed;
- (7) The permittee shall obtain the Chairperson's approval prior to any changes to the abandonment program;
- (8) A history of the well and an as-abandoned diagram of the well shall be filed within sixty days of the abandonment;
- (9) The bond covering the well shall remain in full force and effect until the well is properly abandoned and the site properly restored; and
- (10) This permit shall expire 365 days from the date of issuance.

  
\_\_\_\_\_  
KEITH W. AHUE, Chairperson  
Department of Land and Natural Resources

**SEP 13 1994**

                      
Date of Issuance

c: Land Board Members  
Hawaii County Planning Dept.  
DBEDT  
Dept. of Health  
OEQC, DOH

# BARNWELL GEOTHERMAL CORPORATION

September 1, 1994

HAND DELIVERED

Mr. Manabu Tagomori  
Manager-Chief Engineer  
Division of Water and Land Development  
Department of Land and Natural Resources  
Kalanimoku Building  
1151 Punchbowl Street, Room 227  
Honolulu, HI 96813

RECEIVED  
94 SEP 2 AIO: 34  
DIV. OF WATER &  
LAND DEVELOPMENT

RE: PLUGGING AND ABANDONMENT OF  
LANIPUNA NO. 1 TMK: 1-3-9:7

Dear Mr. Tagomori:

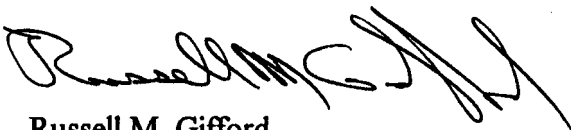
Barnwell Geothermal Corporation ("BGC") requests a permit to plug and abandon Lanipuna No. 1:

Well Designation:	Lanipuna No. 1
Location:	TMK 1-3-9:7
Landowner:	Ho Scheimberg
Operator:	Barnwell Geothermal Corporation
Ground Elevation:	600 ft. $\pm$
Total Depth:	7,753 ft.

Accordingly, please find enclosed a plugging and abandonment plan. If this plan meets with the State Department of Land and Natural Resources' approval, BGC would like to commence with this plan on September 18, 1994, or sooner if possible. With a September 18th start date, BGC anticipates the end date to be around October 31, 1994.

I look forward to hearing from you soon.

Very truly yours,



Russell M. Gifford  
Vice President

RMG/rb

Enclosures

B&A  
Plan



## **LANIPUNA NO. 1 PLUGGING AND ABANDONMENT**

### **PLUGGING**

A 250 lineal foot, high temperature cement plug will be pumped past the bottom of the 9 5/8" casing so that the cement will extend approximately 125 feet into the open hole. A 100 lineal foot neat cement plug will be set between 968 and 1,068 feet straddling the bottom of the 13 3/8" casing and a 100 lineal foot neat cement plug set between 650 and 550 feet straddling below and above sea level. A surface plug extending from -10 feet to a depth of 160 feet will be placed at the top of the hole. Drilling mud will fill the volume between the cement plugs. The accompanying diagram illustrates the configuration of all elements related to the plugging.

#### **Procedures:**

1. After removing the partially welded cap on the 9 5/8" casing, a well head will be installed on the 9 5/8" casing and also a double Ram Blow Out Preventer.  
  
\*Note: The cap is not welded solid and pressure on the casing is not present.
2. Water will be pumped into the hole raising the water level within the well to the surface.
3. Tubing will be installed in the hole to a depth of 3,880 feet. Heavy drilling mud will be spotted at this point. Tubing will then be pulled up to a depth of 3,570 feet at which time Water Resources International, Inc. will mix 120 sacks of class G cement, 40% SiO<sub>2</sub> and .65% CFR-3, providing approximately twice the needed cubic feet of high temperature cement. The cement will be pumped down the tubing in a continuous fashion and displaced with drilling mud, positioning the top of the cement plug at a depth of 3,320 feet.
4. After setting the bottom plug and waiting on cement to set up sufficiently, tubing shall be run into the casing to the top of the cement to verify the location and depth of the plug. The hole will be displaced with drilling mud to a depth of 1,068 feet.
5. A 100 lineal foot neat cement plug will be set between 968 and 1,068 feet. 50 cubic feet neat cement will be pumped through tubing that is set at 968 feet. The well is cool at this depth.
6. After setting the 100 foot plug at 968 feet and waiting on cement to set up sufficiently, tubing shall be run into the casing to the top of the cement to verify the location and depth of the plug. The hole will be displaced with heavy drilling mud to a depth of 650 feet.

7. Steps 5 and 6 will be repeated from 550 feet to 650 feet.
8. After setting the 100 foot plug at 650 feet and waiting on cement to set up sufficiently, tubing will be run into the casing to verify the location and depth of the plug. The hole will be filled with heavy drilling mud to 160 feet.
9. A cement plug will be set from the surface to a depth of 160 feet by pumping 75 cubic feet of neat cement through tubing set at a depth of 160 feet.

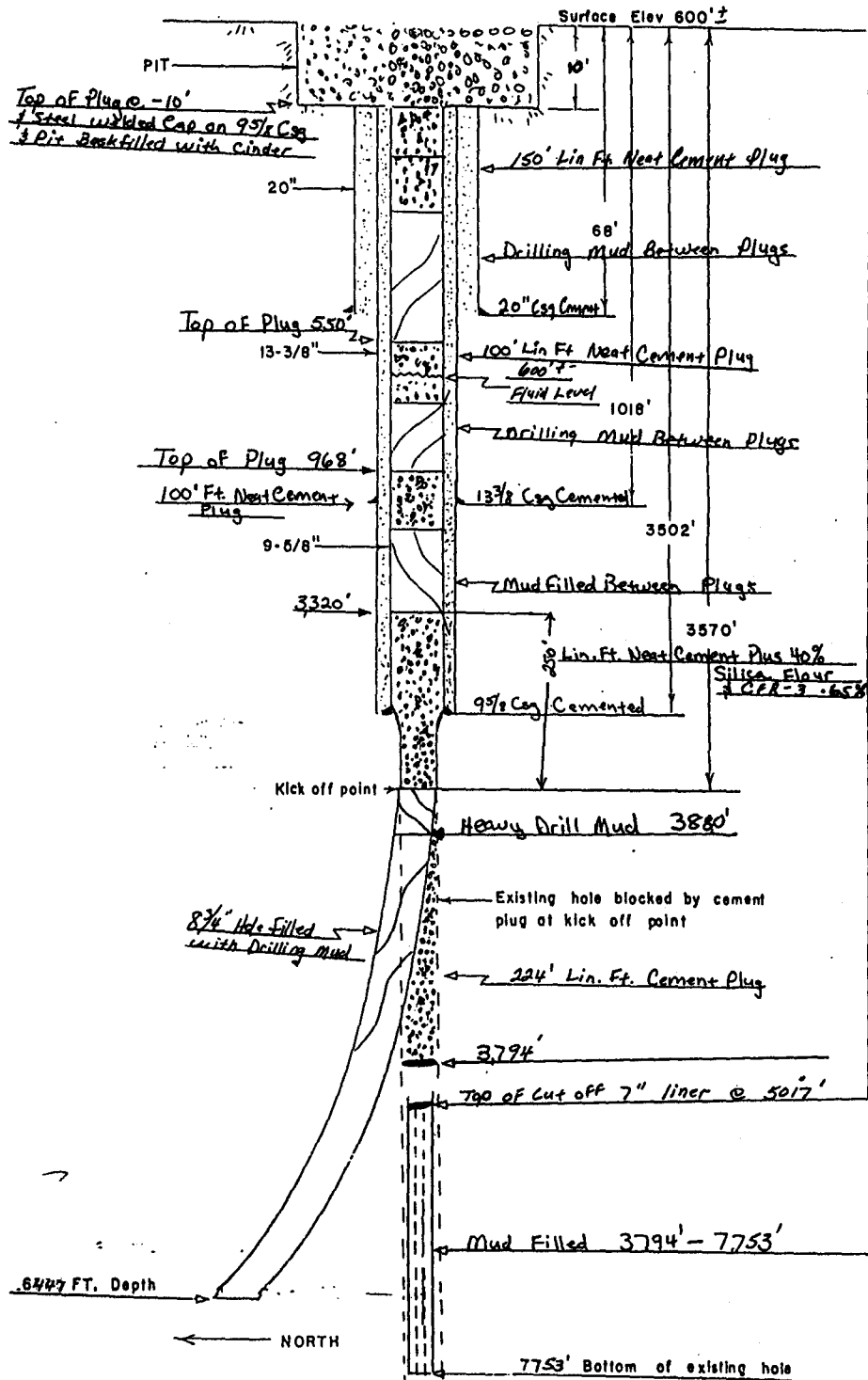
#### ABANDONMENT

The casing will be cut off near the bottom of the cellar, the cellar will be filled with cinders making it flush with the surface and the fence surrounding the cellar will be removed.

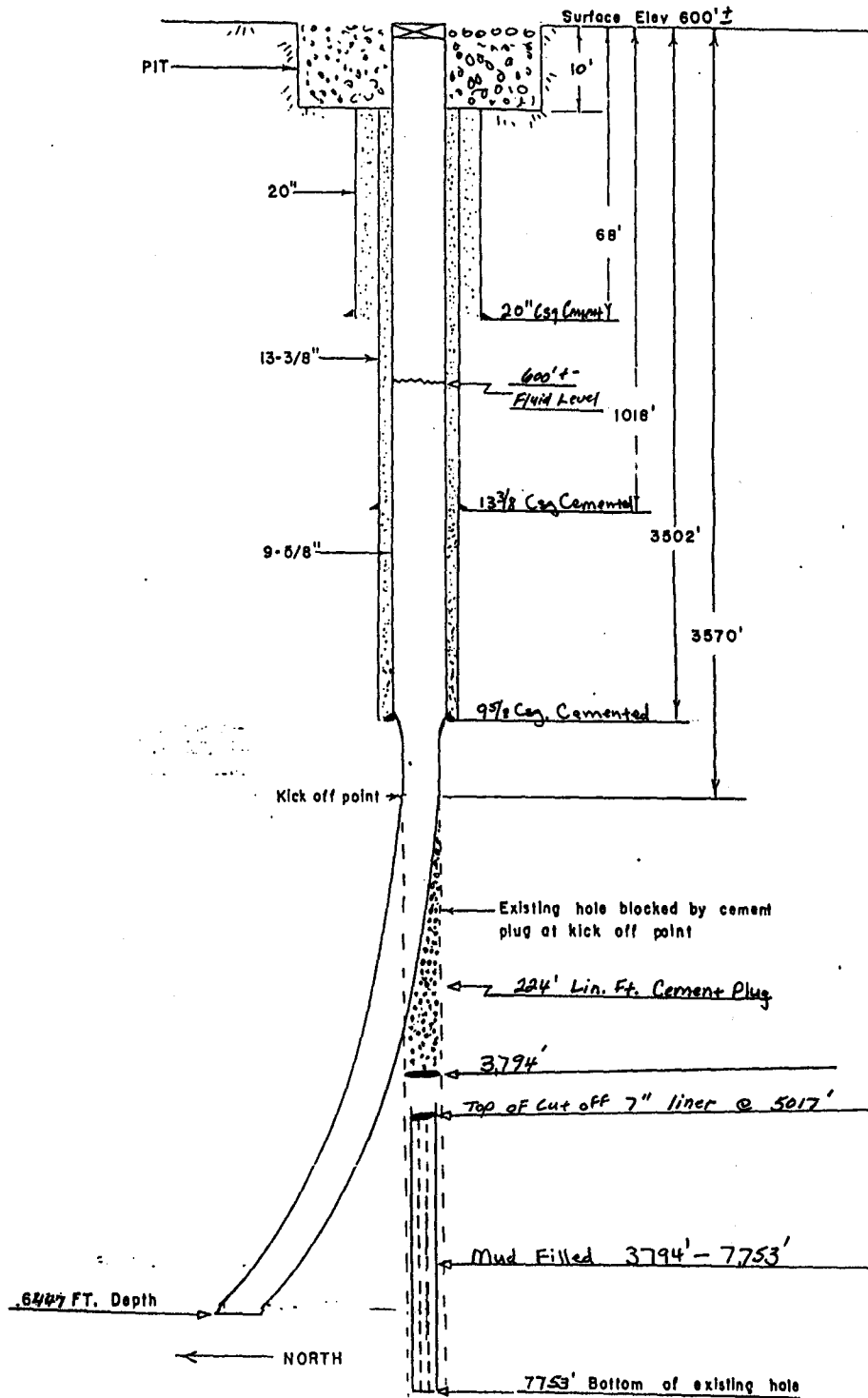
#### DOCUMENTATION

Following completion of the plugging and abandonment, an as-abandoned drawing of the well will be filed with the Department of Land and Natural Resources.

## LANIPUNA NO.1

Proposed Plugging & Abandonment - Not To Scale

## LANIPUNA NO.1

Existing Conditions - NOT TO SCALE

DOCUMENT NUMBER: \_\_\_\_\_

DATE: \_\_\_\_\_

## UAC OR ATTACHED WORKSHEET

F	YR	APP	D	SRC/ OBJ	COST CTR	PROJECT	PH	ACT	AMOUNT	NAME/DESCRIPTION (WANG INPUT)
G	00	000	C	1026	0742	-----	--	---	(1). 100.00	Barnwell Industries
--	--	--	--	-----	-----	-----	--	---	(2)	Lanai Puna 1
--	--	--	--	-----	-----	-----	--	---	(3)	FHB # 14462
--	--	--	--	-----	-----	-----	--	---	(4)	
TOTAL										09/07/94 *0012* CHECK 100.00

# BARNWELL GEOTHERMAL CORPORATION

September 1, 1994

HAND DELIVERED

Mr. Manabu Tagomori  
Manager-Chief Engineer  
Division of Water and Land Development  
Department of Land and Natural Resources  
Kalanimoku Building  
1151 Punchbowl Street, Room 227  
Honolulu, HI 96813

RECEIVED  
94 SEP 2 AIO: 34  
DIV. OF WATER &  
LAND DEVELOPMENT

RE: PLUGGING AND ABANDONMENT OF  
LANIPUNA NO. 1 TMK: 1-3-9:7

Dear Mr. Tagomori:

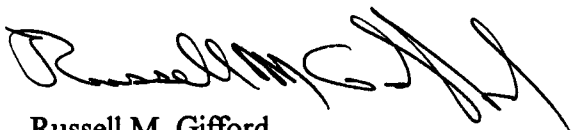
Barnwell Geothermal Corporation ("BGC") requests a permit to plug and abandon Lanipuna No. 1:

Well Designation:	Lanipuna No. 1
Location:	TMK 1-3-9:7
Landowner:	Ho Scheimberg
Operator:	Barnwell Geothermal Corporation
Ground Elevation:	600 ft. $\pm$
Total Depth:	7,753 ft.

Accordingly, please find enclosed a plugging and abandonment plan. If this plan meets with the State Department of Land and Natural Resources' approval, BGC would like to commence with this plan on September 18, 1994, or sooner if possible. With a September 18th start date, BGC anticipates the end date to be around October 31, 1994.

I look forward to hearing from you soon.

Very truly yours,



Russell M. Gifford  
Vice President

RMG/rb

Enclosures

## **LANIPUNA NO. 1 PLUGGING AND ABANDONMENT**

### **PLUGGING**

A 250 lineal foot, high temperature cement plug will be pumped past the bottom of the 9 5/8" casing so that the cement will extend approximately 125 feet into the open hole. A 100 lineal foot neat cement plug will be set between 968 and 1,068 feet straddling the bottom of the 13 3/8" casing and a 100 lineal foot neat cement plug set between 650 and 550 feet straddling below and above sea level. A surface plug extending from -10 feet to a depth of 160 feet will be placed at the top of the hole. Drilling mud will fill the volume between the cement plugs. The accompanying diagram illustrates the configuration of all elements related to the plugging.

#### **Procedures:**

1. After removing the partially welded cap on the 9 5/8" casing, a well head will be installed on the 9 5/8" casing and also a double Ram Blow Out Preventer.  
  
\*Note: The cap is not welded solid and pressure on the casing is not present.
2. Water will be pumped into the hole raising the water level within the well to the surface.
3. Tubing will be installed in the hole to a depth of 3,880 feet. Heavy drilling mud will be spotted at this point. Tubing will then be pulled up to a depth of 3,570 feet at which time Water Resources International, Inc. will mix 120 sacks of class G cement, 40% SiO<sub>2</sub> and .65% CFR-3, providing approximately twice the needed cubic feet of high temperature cement. The cement will be pumped down the tubing in a continuous fashion and displaced with drilling mud, positioning the top of the cement plug at a depth of 3,320 feet.
4. After setting the bottom plug and waiting on cement to set up sufficiently, tubing shall be run into the casing to the top of the cement to verify the location and depth of the plug. The hole will be displaced with drilling mud to a depth of 1,068 feet.
5. A 100 lineal foot neat cement plug will be set between 968 and 1,068 feet. 50 cubic feet neat cement will be pumped through tubing that is set at 968 feet. The well is cool at this depth.
6. After setting the 100 foot plug at 968 feet and waiting on cement to set up sufficiently, tubing shall be run into the casing to the top of the cement to verify the location and depth of the plug. The hole will be displaced with heavy drilling mud to a depth of 650 feet.

7. Steps 5 and 6 will be repeated from 550 feet to 650 feet.
8. After setting the 100 foot plug at 650 feet and waiting on cement to set up sufficiently, tubing will be run into the casing to verify the location and depth of the plug. The hole will be filled with heavy drilling mud to 160 feet.
9. A cement plug will be set from the surface to a depth of 160 feet by pumping 75 cubic feet of neat cement through tubing set at a depth of 160 feet.

#### ABANDONMENT

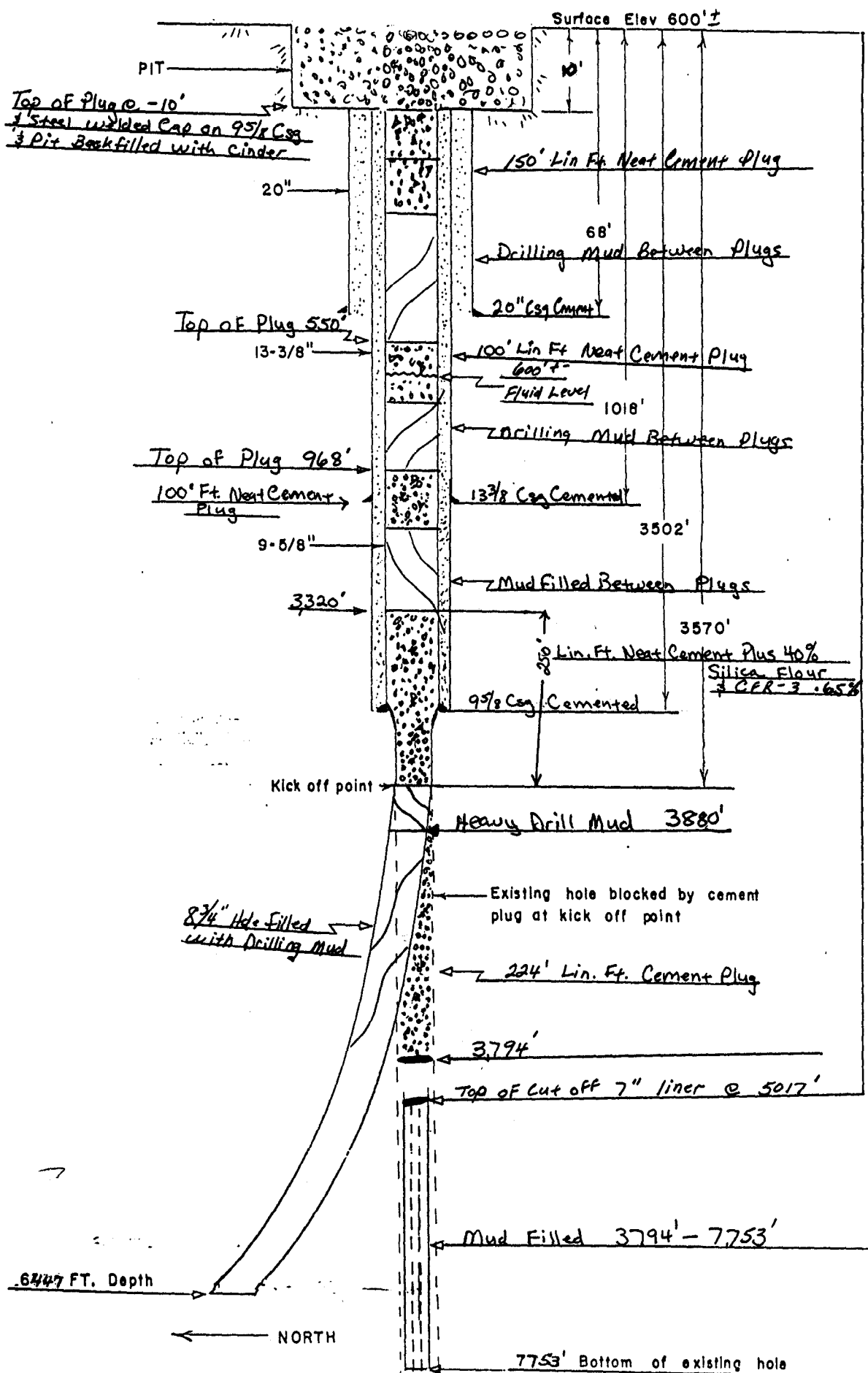
The casing will be cut off near the bottom of the cellar, the cellar will be filled with cinders making it flush with the surface and the fence surrounding the cellar will be removed.

#### DOCUMENTATION

Following completion of the plugging and abandonment, an as-abandoned drawing of the well will be filed with the Department of Land and Natural Resources.

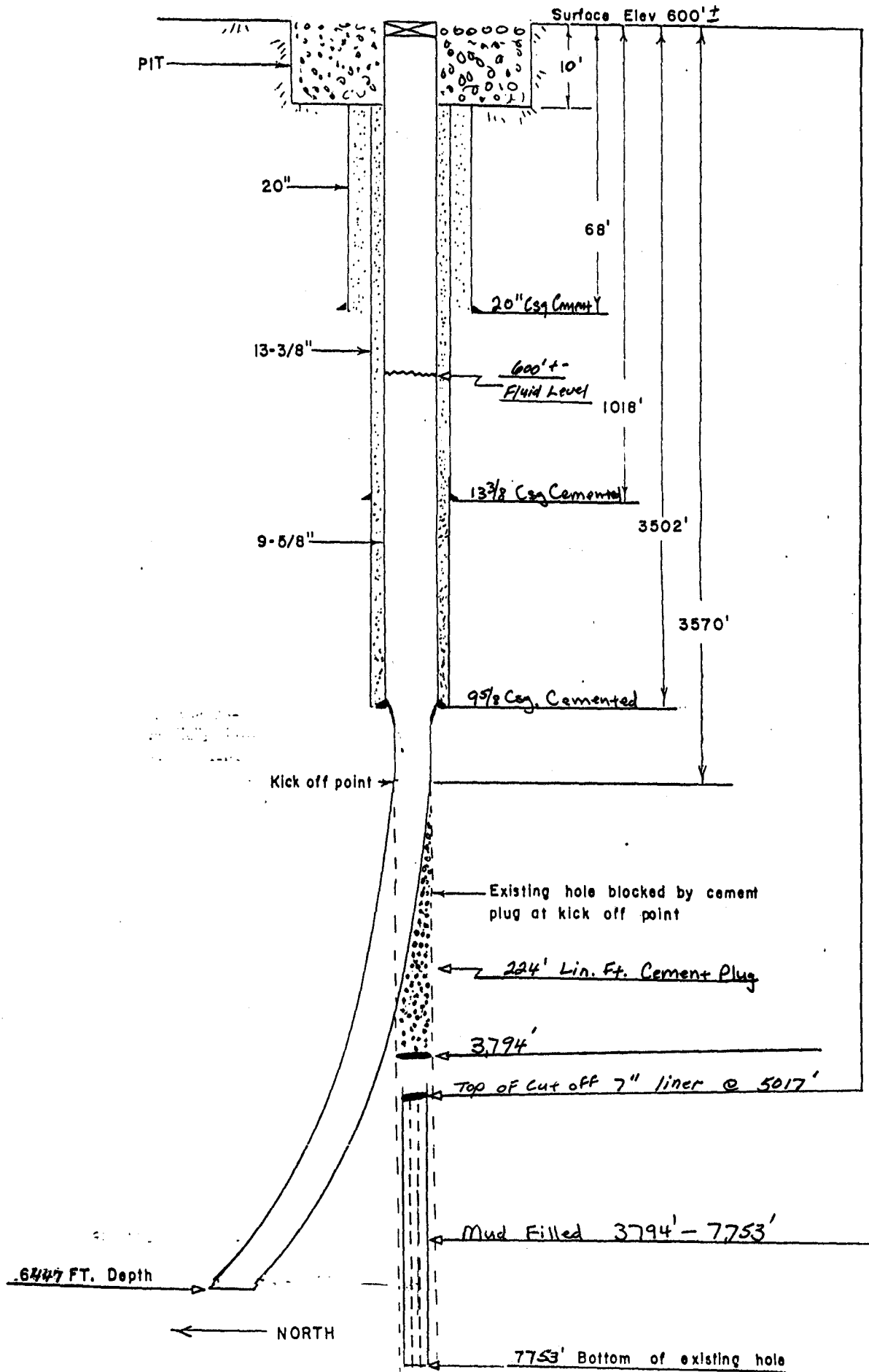


## LANIPUNA NO.1

Proposed Plugging & Abandonment - Not To Scale

# LANIPUNA NO.1

Existing Conditions - NOT To Scale





STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621  
HONOLULU, HAWAII 96809

REF:WL-EK

AUG 25 1994

Keith W. Ahue, Chairperson  
BOARD OF LAND AND NATURAL RESOURCES

DEPUTIES

JOHN P. KEPPELER, II  
DONA L. HANAIKE

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

Mr. Horace Scheimberg  
Makani Kai Realty, Suite 207  
45-955 Kamehameha Highway  
Kaneohe, HI 96744

Dear Mr. Scheimberg: *H*

LANI PUNA 1 GEOTHERMAL WELL

As requested, we have completed our re-evaluation of Lani Puna 1 to see if it has any value as a geothermal monitoring well. Our review shows that Lani Puna 1 has little or no value in our evaluation of geothermal resources in the area for the following reasons:

1. Although high temperatures were encountered, there were no geothermal resource (steam) which could be developed to produce electricity or monitored.
2. Current geological data from Puna Geothermal Venture's wells shows the location of Lani Puna 1 to be outside of the geothermal reservoir which is feeding steam to KS-9 and KS-10 production wells.
3. The adjacent HGP-A well is on the edge of the geothermal reservoir which currently is feeding steam to KS-9 and KS-10, provides us the necessary monitoring data to observe any changes.

Based on the above information we do not consider Lani Puna 1 to be a geothermal monitoring well.

Thank you for bringing this matter to our attention.

Very truly yours,

*Keith W. Ahue*  
KEITH W. AHUE

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER RESOURCE MANAGEMENT  
P. O. Box 373  
Honolulu, Hawaii 96809

DAILY REPORT

SEPTEMBER 16, 1991

Well No. LANIPUNA, ASIHUA

Contractor BARNWELL

DESCRIPTION OF ACTIVITIES

LANIPUNA 1 - THE ACCESS ROAD GROWN OVER WITH GRASS AND  
SHRUBS - NEED TO BE CLEARED TO HAVE ACCESS -

LANIPUNA 6 - THE BIG EQUIPMENT HAVE BEEN MOVED FROM LOCATION  
BUT SMALLER THINGS WOULD HAVE TO BE CLEANED UP - AND THE  
WELLHEAD AREA CLEARED OF OVER GROWTH

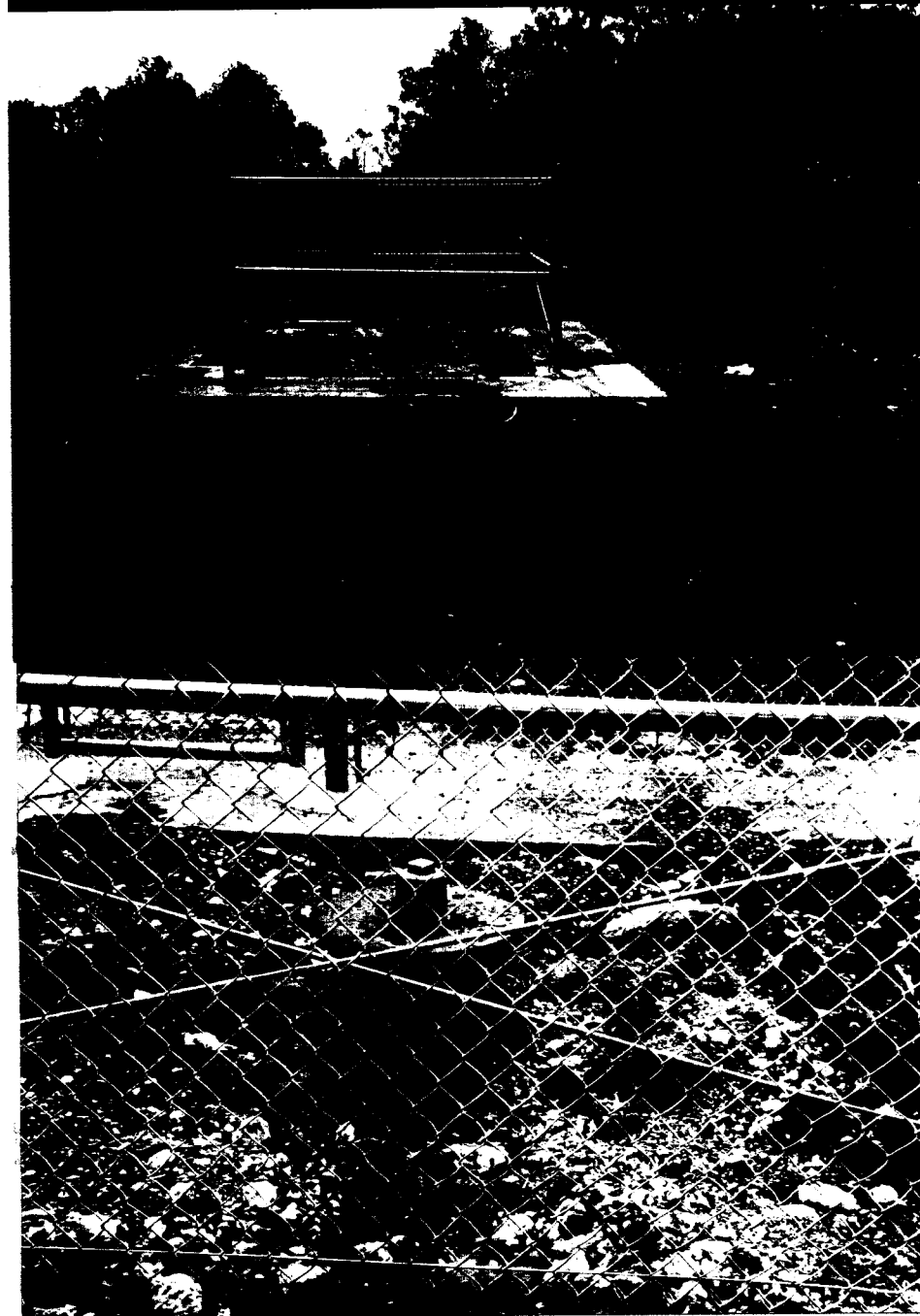
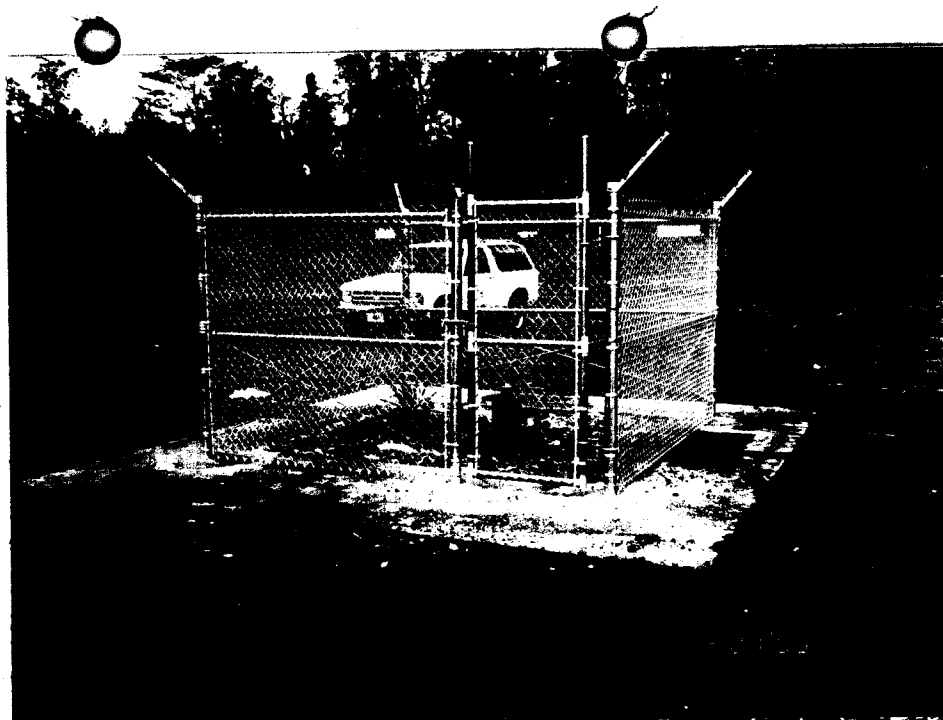
ASIHUA - ACCESS ROAD WAS BLOCKED BY HAWTHORNES AND COULD  
NOT GET TO WELLHEAD

LANIPUNA 2 - ACCESS GOOD TO WELL HEAD - GRAVEL HAS  
BARELY BEEN TO FEEL CLEAN FOR SAVING PURPOSE.

Weather GOOD

Submitted by Eric Paul

LANIPUNA #1



State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DAILY CONSTRUCTION REPORTAugust 27, 1990JOB NO. Lanipuna #1

CONTRACTOR: \_\_\_\_\_

DESCRIPTION OF CONSTRUCTION ACTIVITIESThe drilling contractor put up fencing around the wellhead. Pictures to follow.

Materials		Equipment (Hours)		
Item	Rec'd	Used	Hours Used	Type

Remarks: \_\_\_\_\_

Weather: Good

Payroll for Week Ending \_\_\_\_\_

Payroll Amount \_\_\_\_\_

No. of Men: \_\_\_\_\_

Submitted by:

Eric A. O'Neil

# BARNWELL GEOTHERMAL CORPORATION

August 21, 1990

RECEIVED

90 AUG 22 A 7: 59

DIV. OF WATER &  
LAND DEVELOPMENT

Mr. Manabu Tagomori  
Deputy Director  
State of Hawaii  
Dept. of Land & Natural Resources  
P.O. Box 373  
Honolulu, Hawaii 96809

Dear Mr. Tagomori:

Your letter of August 14, 1990 notes certain deficiencies in the maintenance of the Lani-Puna I and Ashida well sites. Since the receipt of your letter, all such deficiencies have been cured. In particular, a fence has been installed around the Lani-Puna I cellar, and the water in the Ashida cellar has been removed and the valves on that well head have been checked to assure that they move freely.

Both the geothermal resource mining lease performance bond and the liability insurance have been obtained. The bond and certificate of insurance are enclosed with this letter.

As we had discussed earlier, the Hawaii Volcano Observatory had expressed interest in using both the Lani-Puna I and Ashida wells for seismic monitoring. We have, however, concluded that this use of the wells would make it difficult for us to assure our compliance with all governmental regulation, and have decided that these wells should be plugged and abandoned. We will be forwarding to you our plan for the proposed abandonment as soon as possible.

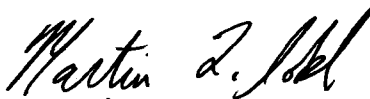
The Lani-Puna VI well is significantly different from either the Lani-Puna I or the Ashida well in that we believe that Lani-Puna VI has significant commercial value as an injection well that could be utilized in the future production of geothermal resources. We note that at least one area under the State Geothermal Lease has significant potential to produce geothermal resources and we still hope to develop that area. Furthermore, even if exploration in that area does not prove up a geothermal resource within our leasehold, development by others in adjoining areas may well make the Lani-Puna VI well valuable.

# BARNWELL GEOTHERMAL CORPORATION

Mr. Manabu Tagomori  
August 21, 1990  
Page Two

I trust that the remedial actions taken and the plan set forth above meet your requirements. Please feel free to contact me if you have any questions or comments.

Sincerely,



Martin L. Jokl  
President

enclosures

MLJ/rz





STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

P. O. BOX 373  
HONOLULU, HAWAII 96809

AUG 15 1990

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

DEPUTIES  
**KEITH W. NIUE**  
MANABU TAGOMORI  
RUSSELL N. FUKUMOTO

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

Mr. Martin L. Jokl, President  
Barnwell Geothermal Corporation  
2828 Paa Street, Suite 2085  
Honolulu, Hawaii 96819

Dear Mr. Jokl:

In our letters of May 31, 1989 and October 19, 1989, the Department of Land and Natural Resources advised Barnwell Geothermal Corporation (Barnwell) that field inspections of Geothermal Wells Lanipuna No. 1 and Ashida No. 1 showed that both well sites were overgrown with vegetation and poorly maintained.

In both instances, Barnwell was notified that unless the situation was remedied, steps would be taken by the Department to authorize the proper abandonment of the wells, at the expense of the lessee (Barnwell) and the surety.

On January 25, 1990, your company informed us that the Hawaiian Volcano Observatory had expressed interest in using Lanipuna No. 1 and Ashida No. 1 for monitoring purposes and that discussions were underway seeking an agreement for such use. To date, we have not received any further information as to the status of such negotiations and what future plans, if any, are being proposed for these wells.

Recent inspection of the well sites has shown that some remedial work has been undertaken at the site of Lanipuna No. 1. The area has been cleared but is still without proper fencing around the well collar. The Ashida No. 1 concrete well collar is filled with water and the site overgrown with vegetation.

In your phone conversation with our staff on August 6, 1990, you indicated that a contractor had been hired to install the required fencing at Lanipuna No. 1, and that the work would be completed by the week of August 20, 1990.

AUG 15 1990

In addition, you stated that the Ashida No. 1 collar would be pumped dry as soon as possible, and that steps would be taken to prevent water from filling the collar again. In that regard, please be advised that after pumping of the well collar, all well head appurtenances shall be inspected and verified to be in good working order.

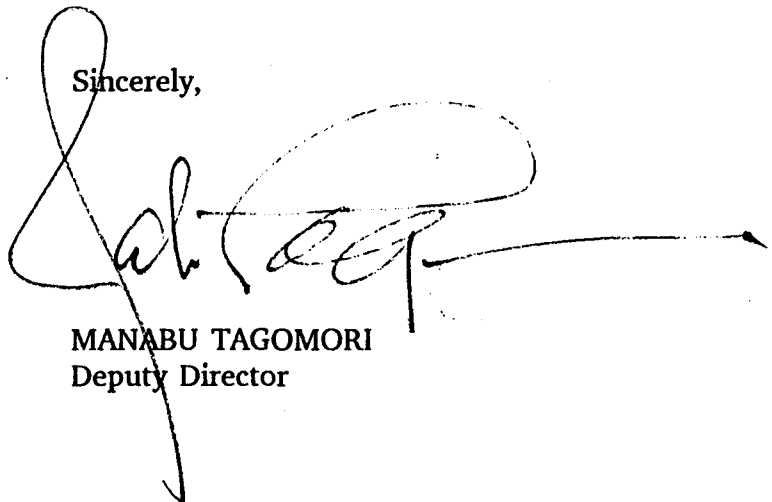
In view of the above, the Department will require that you provide a status report, as soon as possible, concerning the future plans of the subject wells (including Lanipuna No. 6), and any rationale why these wells should not be properly plugged and abandoned.

Please note that all of the above remedial work shall be completed within 30 days from the date of this letter. Failure to comply with this notice and remedy the defects within the specified period shall cause the Department to undertake the work to properly abandon the wells at the expense of the operator and/or surety.

Additionally, the Department still awaits the receipt of a geothermal resource mining lease performance bond and certificate of liability insurance, as required by our administrative rules, Chapter 13-183, HAR. Please submit the required documents, or certified copies thereof, without further delay.

Your attention and prompt response to the above will be greatly appreciated. Should you have any questions, please contact me at 548-7533.

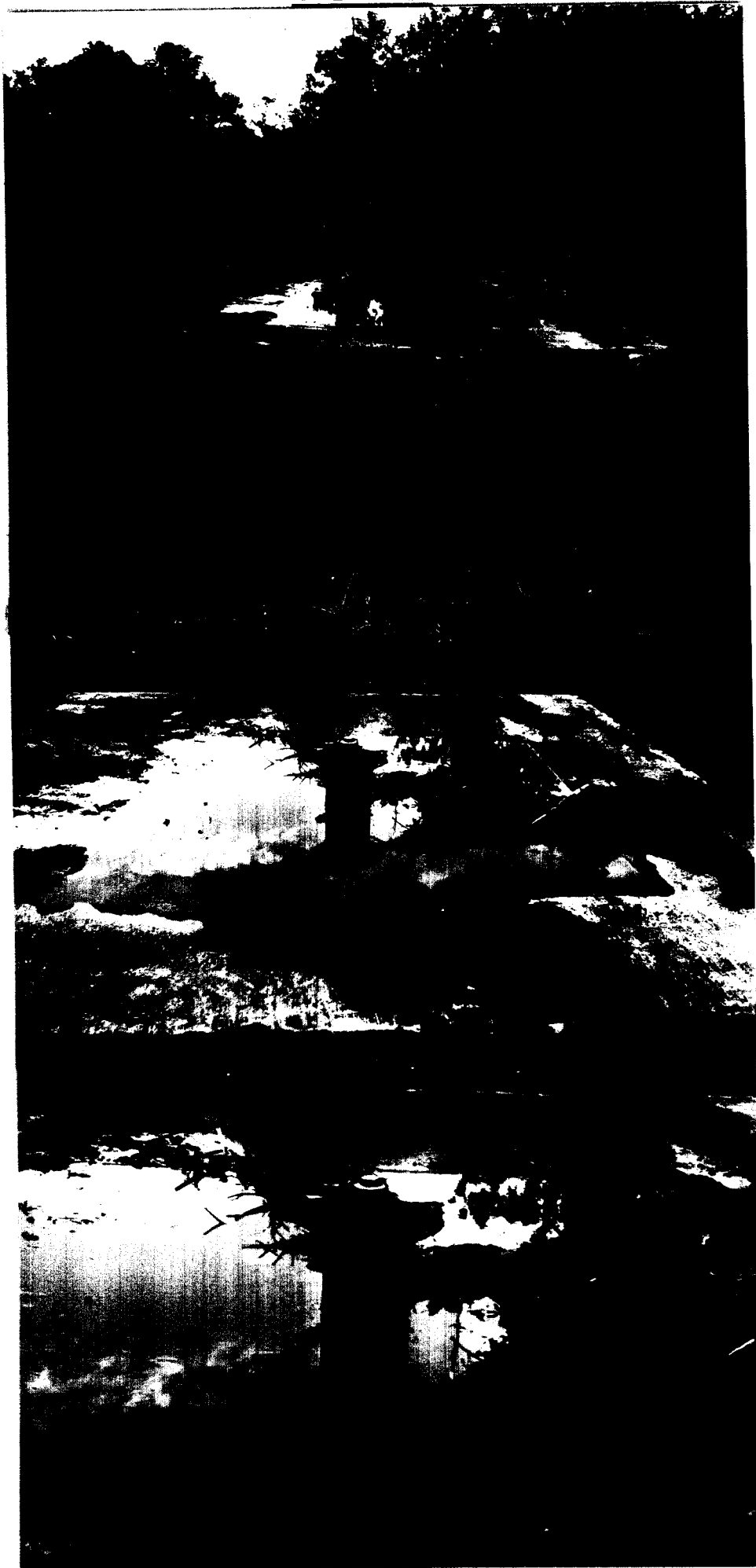
Sincerely,

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

MANABU TAGOMORI  
Deputy Director

DN:bm

LANIPUNA #1



State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DAILY CONSTRUCTION REPORTAugust 1, 1990JOB NO. Lanipuna #1CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_DESCRIPTION OF CONSTRUCTION ACTIVITIESInspected wellsite and there was no fence as yet.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_MaterialsEquipment (Hours)

<u>Item</u>	<u>Rec'd</u>	<u>Used</u>	<u>Hours Used</u>	<u>Type</u>

Remarks: Per Mary Jane (8/27/90), combination for lock on gate (7-6-9-3)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_Weather: Rain

Payroll for Week Ending \_\_\_\_\_

Payroll Amount \_\_\_\_\_

No. of Men: \_\_\_\_\_

Submitted by:

Eire Puh

Report No. \_\_\_\_\_

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DAILY CONSTRUCTION REPORT

July 30, 1990

JOB NO. Lanipuna #1 CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DESCRIPTION OF CONSTRUCTION ACTIVITIES

Inspected wellsite and found no fence erected around the wellhead as yet.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Materials		Equipment (Hours)		
Item	Rec'd	Used	Hours Used	Type

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Weather: Rain

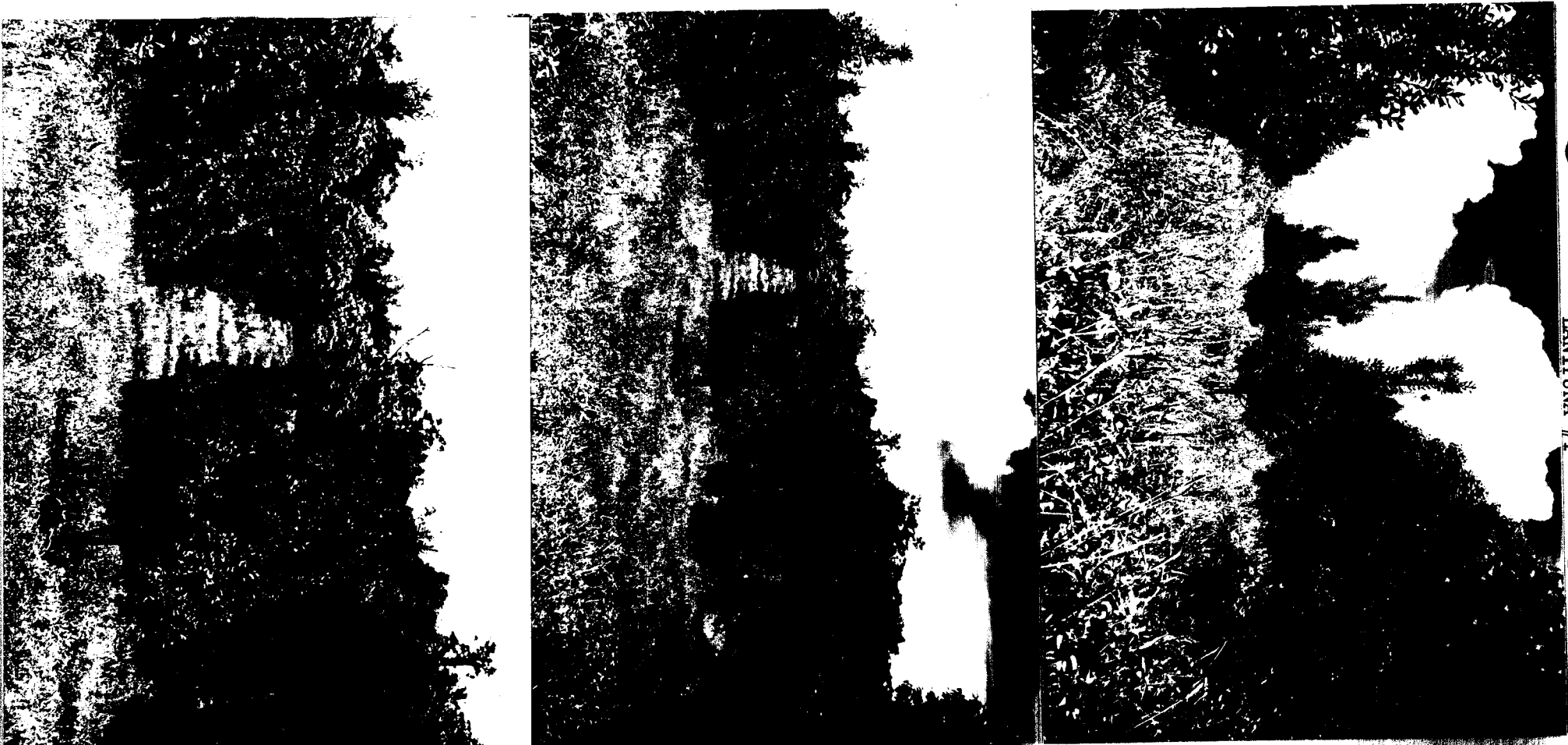
Payroll for Week Ending \_\_\_\_\_ Payroll Amount \_\_\_\_\_

No. of Men: \_\_\_\_\_

Submitted by:

Eini Pulu

LANIPUNA #1



State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DAILY CONSTRUCTION REPORT

July 27, 1990

JOB NO. Lanipuna #1 CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DESCRIPTION OF CONSTRUCTION ACTIVITIES

Located wellsite and found site to be cleared by a bulldozer. There were no fence around the wellhead as yet and the cellar had a piece of casing with a plug welded on the end sticking above the cellar about fifteen (15) inches. The cellar was also filled with cinder and water.

Materials		Equipment (Hours)	
Item	Rec'd	Used	Hours Used

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Weather: Good

Payroll for Week Ending \_\_\_\_\_ Payroll Amount \_\_\_\_\_  
\_\_\_\_\_ No. of Men: \_\_\_\_\_

Submitted by:  
Eric Pouch

Report No. \_\_\_\_\_

RECEIVED

90 JUL 23 4 9: 40

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DAILY CONSTRUCTION REPORT

July 17, 19 90

JOB NO.

DIV. OF WATER &  
LAND DEVELOPMENT  
Lanipuna #1

CONTRACTOR:

DESCRIPTION OF CONSTRUCTION ACTIVITIES

Visited area where the wellhead should be. Could not find well head. Pictures to follow.

Materials

Equipment (Hours)

Item	Rec'd	Used	Hours Used	Type

Remarks:

Weather: Good

Payroll for Week Ending

Payroll Amount

No. of Men:

Submitted by:

*Eiri Oishi*



Corporate

STATE OF HAWAII )  
CITY & COUNTY OF HONOLULU ) SS:  
)

On this 18th day of August, 1982, before me appeared  
E. C. Craddick,  
to me personally known, who, being by me duly sworn, did say that \_\_\_\_\_,  
he is president  
of BARNWELL GEOTHERMAL CORPORATION, and that the seal  
affixed to the foregoing instrument is the corporate seal of said corporation and that said  
instrument was signed and sealed in behalf of said corporation by authority of its Board of  
Directors, and the said E. C. Craddick  
acknowledged said instrument to be the free act and deed of said corporation.

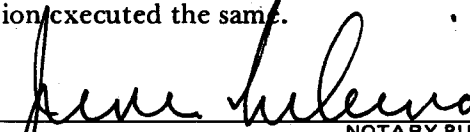
Diane M. Tamara LS  
Notary Public, 1st Judicial Circuit  
State of Hawaii  
My Commission Expires: 10-9-84

State of Hawaii  
City &  
County of Honolulu

} ss. On August 16, 1982, before me, the undersigned,  
a Notary Public of said county and state, personally appeared

John T. Lettieri,  
known to me to be the Attorney-in-Fact of

INDUSTRIAL INDEMNITY COMPANY,  
the Corporation that executed the within instrument, and known  
to me to be the person who executed the said instrument on  
behalf of the Corporation therein named, and acknowledged to  
me that such Corporation executed the same.

  
NOTARY PUBLIC  
Notary Public, State of Hawaii

My Commission Expires 11-16-84

BOND NO. YS 845-7457  
Executed 2

GEOHERMAL RESOURCES WELL INDEMNITY BOND  
(\$50,000 Individual Well Bond)

KNOW ALL MEN BY THESE PRESENTS:

That we BARNWELL GEOTHERMAL CORPORATION

as principal; and INDUSTRIAL INDEMNITY COMPANY

organized and existing under and by virtue of the laws of the STATE OF HAWAII and authorized to transact surety business in the STATE OF HAWAII, as surety, are held and firmly bound unto the State of Hawaii in the full and just sum of FIFTY THOUSAND AND NO/100 DOLLARS (\$50,000.00) lawful money of the United States of America, to be paid to the said State of Hawaii, for which payment, well and truly to be made, we do hereby bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed, delivered and dated this 16th day of August, 1982, at Honolulu, City and County of Honolulu, State of Hawaii.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT,

WHEREAS, said principal is about to acquire, drill, redrill, deepen, operate, maintain or abandon a geothermal resources well designated as Well No. Lanipuna #1 TMK: 1-3-9:7, Latitude \_\_\_\_\_, Longitude \_\_\_\_\_, Island of Hawaii and is required to file this bond in connection therewith in accordance with Rule 9.4 of Regulation 8 of the Department of Land and Natural Resources, State of Hawaii.

NOW, THEREFORE, if said BARNWELL GEOTHERMAL CORPORATION, the above bounden principal, shall well and truly comply with all the provisions of said Regulation 8 and shall obey all lawful orders of the Chairman of the Board of Land and Natural Resources, or his representative, if not appealed to the Board of Land and Natural Resources, or upon affirmance thereof by the Board of Land and Natural Resources, if appealed thereto, and shall pay all charges, costs, and expenses incurred by the Chairman or his representative, in respect of such well or the property or properties of said principal, or assessed against such well or the property or properties of such principal, in pursuance of the provisions of said Regulation 8, then this obligation shall be void; otherwise, it shall remain in full force and effect.

Countersigned by:

Martin L. Jokl  
Martin L. Jokl  
Hawaii Resident Agent

Approved as to form:

William J. [Signature]  
Deputy Attorney General

Dated: 2/5/90

BARNWELL GEOTHERMAL CORPORATION  
Principal

By: [Signature]  
E. C. Craddick  
Its: President

INDUSTRIAL INDEMNITY COMPANY  
Surety

By: [Signature]  
Its: Attorney-in-fact, John T. Lettieri

# Power of Attorney

#1156

INDUSTRIAL  
INDEMNITY

HOME OFFICE - SAN FRANCISCO

Know all men by these presents:

That INDUSTRIAL INDEMNITY COMPANY, a corporation organized and existing under the laws of the State of California, and having its principal office in the City of San Francisco, State of California, does hereby make, constitute and appoint

~~-----JOHN T. LETTIERI-----~~

its true and lawful attorney-in-fact for it and in its name, place and stead to execute on its behalf as surety, bonds, undertakings, stipulations, consents and all contracts of suretyship and to attach its corporate seal to such obligations in favor of all obligees, provided that the liability of the Company as surety under his authority in no one instance shall exceed the sum of

~~-----UNLIMITED-----~~

and reserving to itself full power of substitution and revocation.

This Power of Attorney is made and executed in accordance with the Resolution adopted by the Board of Directors of INDUSTRIAL INDEMNITY COMPANY at a meeting held on the 27th day of September, 1972, reading as follows:

"RESOLVED, that the Chairman of the Board or President or Executive Vice President or Senior Vice President of the Company, in conjunction with the Secretary or an Assistant Secretary of this Company, he and he hereby is authorized to execute, acknowledge or verify Powers of Attorney qualifying selected attorneys-in-fact to act under such Powers of Attorney to execute on behalf of Industrial Indemnity Company bonds, undertakings, stipulations, consents and all contracts of suretyship, and to attach the corporate seal thereto;

"RESOLVED, FURTHER, that the signatures of said officers so authorized by this Company may be printed facsimile, lithographed or otherwise produced, and that the facsimile signature of any person who shall have been such officer of this Company at the time of such execution, acknowledgment or verification may continue to be used for the purpose hereinabove stated and will be binding on this Company, notwithstanding the fact that he may have ceased to be such officer at the time when such instruments shall be issued."

In witness whereof, INDUSTRIAL INDEMNITY COMPANY has caused these presents to be signed and its corporate seal to be affixed by its proper officers, at the City of San Francisco, California, this 18th day of February, 1982.

Attest:



*[Signature]*  
L. E. Mulryan, Secretary

INDUSTRIAL INDEMNITY COMPANY

By *[Signature]*  
J. G. LaPlante, Senior Vice President

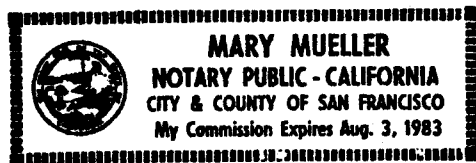
STATE OF CALIFORNIA }  
CITY AND COUNTY OF SAN FRANCISCO } ss.

On this 18th day of February, 1982, before me, Mary Mueller  
a notary public in and for the City and County of San Francisco, State of California, personally appeared

J. G. LaPlante and L. E. Mulryan

known to me to be the Senior Vice President and Secretary of the corporation which executed the within instrument, and acknowledged to me that such corporation executed the same, and that the resolution referred to in the preceding instrument is a true and correct copy of the resolution duly passed at a meeting of the Board of Directors on September 27, 1972, and that the same is in full force and effect.

In witness whereof, I have hereto set my hand and affixed my official seal the day and year in this certificate first above written.



*[Signature]*  
Notary Public in and for the City and County  
of San Francisco, State of California

I, L. E. Mulryan, Secretary of INDUSTRIAL INDEMNITY COMPANY, do hereby certify that I have compared the Power of Attorney granted herein and the Resolution recited herein with the originals now on file in the principal office of said Company, and that the same are correct transcripts therefrom and of the whole of the said originals, and that said Power of Attorney has not been revoked but is still in full force and effect.

In witness whereof, I have hereunto subscribed my name as such officer and affixed the seal of INDUSTRIAL INDEMNITY COMPANY at the City of San Francisco, California, this 16th day of August, 1982.

SEAL

*[Signature]*  
L. E. Mulryan, Secretary

7d-9

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES

DESIGNATION OF AGENT

In compliance with Rule 8.2 of Regulation 8 of the Department of Land and Natural Resources, notice is hereby given and I hereby certify that I  
(I, we) (I, we)

E. C. Craddick

Name(s)

representing BARNWELL GEOTHERMAL CORPORATION (OWNER-OPERATOR)  
(firm or corporation)

of Honolulu, State of Hawaii, have appointed, authorized and  
(City)

empowered BARNWELL GEOTHERMAL CORPORATION  
(name of designee)

whose address is 2828 Paa St., Suite 2085, Hon., Hi 96819, State of Hawaii,  
as our agent in the State of Hawaii\*  
(my, our)

who shall be the repository for all well records for each geothermal well drilled by  
us, and upon whom all orders, notices and processes under the provisions of  
(me, us)

said Regulation 8 may be served.

This notice supersedes all previous designations made for the above-described purposes.

IN WITNESS WHEREOF I have signed this certificate this 18th day of  
(I, we)  
August, 19 82

Witness:

Janet A. Meyer

E. C. Craddick, President  
Name and Title

\_\_\_\_\_  
Name and Title

Agent's acceptance:

E. C. Craddick  
E. C. Craddick

NOTE: An owner or operator may appoint himself as agent.

\*Should the owner or operator filing this form choose to appoint more than one agent, the phrase, "State of Hawaii" should be deleted and the exact area for which the agent is to be appointed should be inserted. A separate form must be filed for each agent.

Rule 8.2. Designation of Agent. Any person who has drilled, is drilling, or proposes to drill any geothermal well shall designate on forms provided by the Department an agent who shall be a resident of the State of Hawaii and upon whom may be served all orders, notices, and processes of the Department or any court of law. Every person so appointing an agent shall, within five days after the termination of any such agency, notify the Chairman in writing of such termination, and unless operations are discontinued, shall appoint a new agent. All changes in the address of an agent must be recorded with the Chairman within five days of the change of the address.

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

DESIGNATION OF AGENT

In compliance with Section 13-183-64 of the Department of Land and Natural Resources, notice is hereby given and I hereby certify that I MARTIN L. JOKL (Name), representing BARNWELL GEOTHERMAL CORPORATION (OWNER-OPERATOR) of Honolulu, State of Hawaii, have appointed, authorized and empowered MARTIN L. JOKL, whose address is 2828 Paa Street, Suite 2085, Honolulu, Hawaii 96819, State of Hawaii, as our agent in the State of Hawaii\* \_\_\_\_\_, who shall be the repository for all well records for each geothermal well drilled by us, and upon whom all orders, notices and processes under the provisions of said Chapter 13-183-64 may be served.

This notice supersedes all previous designations made for the above-described purposes.

IN WITNESS WHEREOF \_\_\_\_\_ I (I/we) have signed this certificate this 7TH day of MAY, 1990.

Witness:

Bernard J. Zerk

Martin L. Jokl  
MARTIN L. JOKL, PRESIDENT

\_\_\_\_\_  
Name and Title

\_\_\_\_\_  
Name and Title

Agent's acceptance:

Martin L. Jokl  
MARTIN L. JOKL

NOTE: An owner or operator may appoint himself as agent.

\*Should the owner or operator filing this form choose to appoint more than one agent, the phrase, "State of Hawaii" should be deleted and the exact area for which the agent is to be appointed should be inserted. A separate form must be filed for each agent.

Section 13-183-64 Designation of Agent. Any person who has drilled, is drilling, or proposes to drill any geothermal well shall designate on forms provided by the Department an agent who shall be a resident of the State of Hawaii and upon whom may be served all orders, notices, and processes of the Department or any court of law. Every person so appointing an agent shall, within five days after the termination of any such agency, notify the Chairman in writing of such termination, and unless operations are discontinued, shall appoint a new agent. All changes in the address of an agent must be recorded with the Chairman within five days of the change of the address.

RECEIVED

90 FEB 20 A 9: 27  
Report No. \_\_\_\_\_

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DAILY CONSTRUCTION REPORT

Feb. 14, 19 90

JOB NO. Lanipuna #1 and Lanipuna #6 CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**DESCRIPTION OF CONSTRUCTION ACTIVITIES**

Met with Bill Craddock to inspect the Lanipuna Wells. First visited Lanipuna #6 well,  
the condition of the well head ok with little overgrowth around the fenced in area.  
Tried to locate Lanipuna #1 with Bill, but could not locate. Bill said he would get in  
contact with the suveyors to locate the exact location of the well. He would get in  
touch with me when he gets this information. Pictures to follow at a later date.

Materials			Equipment (Hours)	
Item	Rec'd	Used	Hours Used	Type

**Remarks:** At Lanipuna #6 there are a lot of equipment stored there. Bill mentioned of  
moving the equipment to a yard that they have established.

**Weather:** Good.

**Payroll for Week Ending** \_\_\_\_\_ **Payroll Amount** \_\_\_\_\_

**No. of Men:** \_\_\_\_\_

**Submitted by:**

*Eric Paul*

Report No. \_\_\_\_\_

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DAILY CONSTRUCTION REPORT

Feb. 6, 1990

JOB NO. Lanipuna #1 & Ashida #1

CONTRACTOR: Barnwell/ Water Resources

DESCRIPTION OF CONSTRUCTION ACTIVITIES

Called Mr. Bill Cradock to make arrangements to inspect the above well sites. Lanipuna #6  
would not be a problem for the signs posted are for the farmer who uses the back area  
of the well site area. Lanipuna #1 would be a problem due to over-grown vegetation and  
no fencing of the well. He also stated that the Lanipuna #1 well does not have a wellhead  
on due to non availability of geothermal resource and the well is sealed off with a  
metal cover welded on the casing. Ashida #1 does not have access rights from Bishop  
Estate for inspection of the Wellsite at this time.

Materials			Equipment (Hours)	
Item	Rec'd	Used	Hours Used	Type

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Weather: Little Rain

Payroll for Week Ending \_\_\_\_\_ Payroll Amount \_\_\_\_\_

No. of Men: \_\_\_\_\_

Submitted by:

Em Ashida



RECEIVED

Report No. \_\_\_\_\_

80 JAN 23 A 8: 08

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
DIVISION OF WATER AND LAND DEVELOPMENT

DIV. OF WATER &  
LAND DEVELOPMENT

DAILY CONSTRUCTION REPORT

Jan. 18, 19 90

JOB NO. Lanipuna #1 CONTRACTOR: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

DESCRIPTION OF CONSTRUCTION ACTIVITIES

Tried to get into area of well site. The area is overgrown and no access open.

Materials			Equipment (Hours)	
Item	Rec'd	Used	Hours Used	Type

Remarks: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Weather: Good (little rain)

Payroll for Week Ending \_\_\_\_\_ Payroll Amount \_\_\_\_\_

No. of Men: \_\_\_\_\_

Submitted by:

Erie Parsh

# BARNWELL GEOTHERMAL CORPORATION

80 JAN 29 AIO: 16

January 25, 1990

DIV. OF WATER &  
LAND DEVELOPMENT

Mr. Manabu Tagomori  
Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, Hawaii 96809

Reference: Your Letter of January 12, 1990

Dear Mr. Tagomori:

We suggest that the simplest way of turning over the Lanipuna No. 1 and Ashida No. 1 is by way of transfer of ownership and operation.

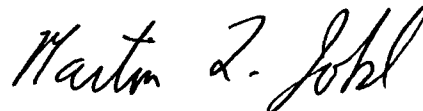
Barnwell Geothermal Corporation ("BGC") will submit application to the DLNR, prior to any activity or execution of agreement with Hawaiian Volcano Observatory ("HVO"). After approval, BGC will finalize a transfer agreement with HVO.

Meanwhile, BGC will submit as-built drawings, and take action to plan and schedule remedial work and submit this also to DLNR before proceeding with the work.

Although your request for drawing is for Lanipuna No. 6 and Ashida No. 1, please note that the transfer is related to Lanipuna No. 1 and Ashida No. 1 only.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



Martin L. Jokl  
President

MLJ/ECC/sm

cc: E. C. Craddick  
Alexander C. Kinzler  
Reginald Okamura, HVO

JOHN WAIHEE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

P. O. BOX 621  
HONOLULU, HAWAII 96809

January 12, 1990

WILLIAM W. PATY  
CHAIRPERSON

JOHN C. LEWIN, M.D.  
MICHAEL J. CHUN, Ph.D.  
ROBERT S. NAKATA  
RICHARD H. COX  
GUY K. FUJIMURA

MANABU TAGOMORI  
DEPUTY

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

Dear Mr. Craddick:

As a follow-up to our recent correspondence concerning the status of geothermal wells Lanipuna Nos. 1 and 6 and Ashida No. 1, and your proposal to transfer the responsibility and operation of these wells to the Hawaiian Volcano Observatory (HVO), our Department of Land and Natural Resources (DLNR) offers the following:

- 1) The proposed transfer of the referenced wells may require the assignment/sublease of the geothermal resource mining lease (GRML R-3) covering wells Lanipuna Nos. 1 and 6.

Pursuant to our Department's Administrative Rules Chapter 13-183, the transfer of responsibility and operation of these wells from Barnwell Geothermal Corporation (transferor), to the Hawaiian Volcano Observatory (transferee) would be subject to the approval of the Board of Land and Natural Resources. An application for a transfer requires a fee of \$100.

- 2) A mining lease may be transferred in whole or in part. The transferee (HVO) shall be bound by the terms of the lease, including the bonding requirements. In addition, the transferor (Barnwell) and its surety shall continue to be responsible for the performance of all obligations under the lease. Should the Board release the transferor from any liabilities or duties under the mining lease those unsatisfied liabilities or unperformed duties which arose prior to the transfer shall remain the responsibility of the transferor.
- 3) If the transfer does not convey a separate interest in title, the transferee may become a joint principal on the indemnity bond with the transferor. The consent of the surety under such conditions is required.

- 4) The transferee must also secure and maintain in force a comprehensive general public liability and property damage insurance in which the State of Hawaii, the Board, and the Department are named insureds, for the minimum amounts of coverage specified in the lease and our regulations.
- 5) Under mining lease GRML R-3, the transfer of authority to operate wells Lanipuna Nos. 1 and 6 may also be possible through the designation of HVO as the operator, without the need for an assignment or transfer of the mining lease. Such designation of a new operator must be approved by the Department's Chairperson.

The new operator must continue to comply with all applicable requirements relating to the use of the premises or the conduct of operations, including the requirement of securing and maintaining a geothermal well indemnity bond for the amount of \$50,000. Such bond must remain in force for the life of the well and may not be released until the well is properly abandoned, as determined by the Chairperson.

- 6) In the case of geothermal well Ashida No. 1, which is not covered under an existing geothermal resource mining lease and which cannot be transferred via an assignment of a lease, its operation by a party other than the original permittee may be possible by transferring ownership and operation of the well from Geothermal Exploration & Development Corporation (GEDCO) to HVO, and by designating HVO as the new operator of the well.

Any designation of a new operator under an amended ownership/operating agreement should be submitted to the Chairperson for approval prior to the commencement of any activity or use of the well. The party who acquires the ownership or operation of any well shall, within five days after acquisition, file with the Chairperson a new geothermal well indemnity bond or a consent by the surety to the change in principal under the existing bond.

In summary, any proposed changes concerning the responsibility and operation of the above geothermal wells, regardless of which method of transfer is selected, must be submitted in writing for review and approval by the Chairperson. Such request for approval must include a detailed discussion of each party's obligations and acknowledgement of the regulatory requirements and applicable lease conditions.

Please be advised that notwithstanding the outcome of any future

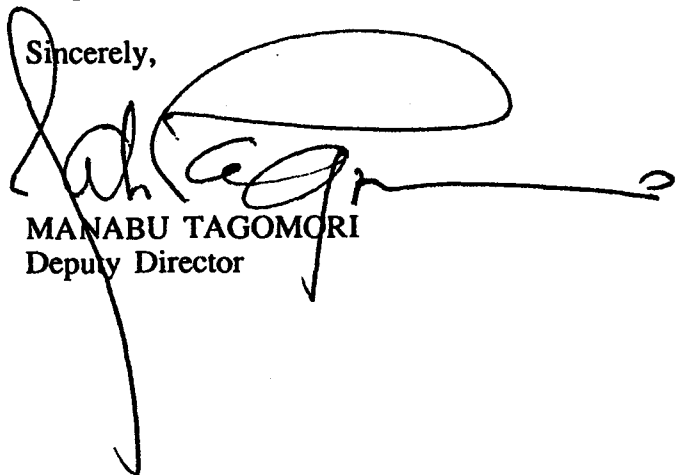
discussions between Barnwell and HVO concerning the above transfer, the lessee and/or operator shall still be responsible for maintaining the wells and premises, providing access to the sites or properly abandoning any well. Additionally, no well shall be plugged until the manner and method of plugging has been approved or prescribed by the Chairperson.

With regard to Lanipuna No. 1, the Department will require the immediate restoration of the access road, the removal of the overgrown vegetation, and the installation of proper fencing around the well-head. A plan and schedule outlining this required remedial work shall be submitted to the Department prior to the start of work. Unless immediate remedial efforts are undertaken, the Department will authorize well abandonment action, at the expense of the lessee (Barnwell) and the surety.

Lastly, the Department awaits the submittal of as-built diagrams showing existing well conditions for both Lanipuna No. 6 and Ashida No. 1, requested in our letter of October 19, 1989.

Your prompt attention to the above, and a response concerning your discussions with the Hawaiian Volcano Observatory, will be greatly appreciated. Should you have any questions, please call me 548-7533.

Sincerely,

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

MANABU TAGOMORI  
Deputy Director

DN:bm

cc: Reginald Okamura, HVO



# United States Department of the Interior



GEOLOGICAL SURVEY  
Hawaiian Volcano Observatory  
P.O. Box 51

Hawaii National Park, Hawaii 96718

Telephone: (808) 967-7328

October 30, 1989

DIV. OF WATER & LAND DEVELOPMENT  
FAX: (808) 967-8890

Mr. Ed Craddick, President  
Water Resources International  
2828 Paa Street  
Honolulu, HI 96819

Dear Mr. Craddick:

Thank you for the information concerning the availability of two 7,000-8,000-ft deep vertical drill holes in the lower east rift zone of Kilauea called Lanipuna #1 and Opihikao. The US Geological Survey's Hawaiian Volcano Observatory is very interested in obtaining the rights to these holes to conduct heretofore contemplated geophysical experiments.

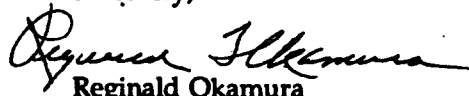
Our main objective in acquiring these holes is to use data collected from them to refine seismic-velocity structure and temporal changes in stress of the east rift zone of Kilauea. This can be accomplished by installing a tri-axial broad-band seismograph with sensors in the accessible vertical deep holes and ground-surface and GEOS or compatible magnetic tape recording system to monitor the activity. We are initially interested in doing feasibility studies detailing short-term (6 months) operation for collection of spectral-velocity data from local earthquakes, teleseisms, quarry blasts, volcanic tremor, ocean microseisms, and earth-ocean tidal fluctuations, with long-term (>5 years) continuance of deep hole and surface sensors for comparative spectral and velocity changes as a function of time. The ultimate goal of this project is to detect stress changes possibly applicable to earthquake and volcanic eruption-prediction models. Along with the long-term aspects of the project, conversion from on-site data collection to linkage with existing HVO telemetry should be accomplished. Allowances for other geophysical experiments involving strain meters and gravity measurements should be included as part of the use process.

There will be no adverse environmental impact while HVO conducts its experiments, other than a protective fence and shed within the fence. We also have questions as to ownership and access to the affected properties.

Concerns voiced by the staff are (1) whether there is any information or logging notes on the holes; (2) whether there are any rock cuttings available for us to analyze; and (3) whether the drill holes are suitable for simple vertical lowering and raising of cable-linked instruments.

Initial project coordinators will be Reginald Okamura, Thomas Wright, Robert Koyanagi, and Arnold Okamura from USGS-HVO and Bernard Chouet, USGS-Menlo Park, CA. Again, thank you for considering the Hawaiian Volcano Observatory as the benefactor for these holes. If there are any questions, please call us. Our number is (808)967-7328.

Sincerely,

  
Reginald Okamura  
Chief of Operations

cc: Manabu Tagomori, Department of Land and Natural Resources

*Jim Kauhikawa - HVO, ph 967-8824*



Water Resources International

RECEIVED

89 OCT 26 A10: 12  
October 24, 1989

DIV. OF WATER &  
LAND DEVELOPMENT

Mr. Manabu Tagomori  
Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, Hawaii 96809

Reference: Your Letter of October 19, 1989

Dear Mr. Tagomori:

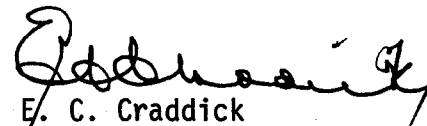
We have been in communication with the Hawaii Volcanic Observatory concerning their interest in using Lanipuna No. 1 and the Ashida No. 1 for monitoring purposes.

They will be making a decision shortly and we will advise you at that time.

Should geothermal plants be constructed near these areas, seismic warnings of impending volcanic activity would be extremely valuable.

Very truly yours,

WATER RESOURCES INTERNATIONAL, INC.

  
E. C. Craddick  
President

ECC/sm

cc: W. R. Craddick - Hilo Office

JOHN WAIHEE  
GOVERNOR OF HAWAII



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

P. O. BOX 621  
HONOLULU, HAWAII 96809

WILLIAM W. PATY  
CHAIRPERSON  
JOHN C. LEWIN, M.D.  
MICHAEL J. CHUN, Ph.D.  
ROBERT S. NAKATA  
RICHARD H. COX  
GUY K. FUJIMURA

MANABU TAGOMORI  
DEPUTY

October 19, 1989

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

Dear Mr. Craddick:

Pursuant to the Department of Land and Natural Resources' Administrative Rules, Chapter 13-183, entitled "Rules on Leasing and Drilling of Geothermal Resources", all wells and their appurtenances shall be maintained in good working order, and provisions made for the access and inspection by our Department. Furthermore, existing roads serving the area shall also be maintained, and access to drilling sites by the public shall be controlled by the lessee to prevent accidents or injury to persons or property.

During recent field inspections by our staff of the site of Geothermal Well Lanipuna No. 1, it was noted that the original access road is overgrown with macadamia nut trees and other vegetation. In addition, the alternate access road was found overgrown with vegetation and guarded by two dogs. "No Trespass" signs were also posted at the entrance to the alternate access road and a temporary shelter was noticed back among the trees.

At the site of Lanipuna No. 1, Department personnel were unable to locate the well head and concrete cellar due to the thick overgrowth. It was observed that the well site is not properly fenced, and evidence indicates that the well may have been improperly abandoned. In summary, the well site appears deserted, poorly maintained, and could be deemed not useful in its present state.

Your last correspondence to the Department stated that Lanipuna No. 1 was the subject of certain discussions and possible negotiations with Ormat as to the possible use of the well for injection or monitoring purposes. If so, the Department shall require the immediate restoration of the access road to the site, cleaning of the overgrown vegetation, and the installation of proper fencing around the well head area. A plan and schedule outlining such remedial work shall be submitted to the Department for review and comment prior to the start of any activity.



Mr. E.C. Craddick

-2-

OCT 19 1989

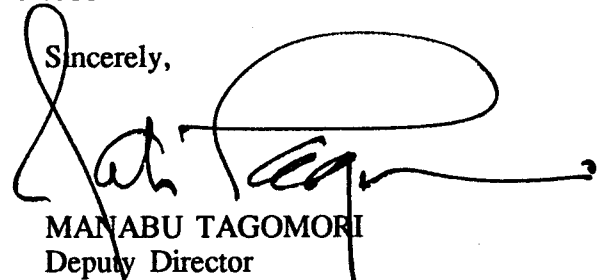
Should Barnwell Geothermal Corporation determine that abandonment of the well is in order, an application for permit to abandon shall be filed with the Chairperson of the Department for approval and revision prior to the commencement of any work.

However, please be advised that unless immediate efforts are undertaken to remedy the above situation, steps shall be initiated by the Department to authorize the proper abandonment of the well, which shall be performed at the expense of the lessee and the surety.

In addition, pursuant to the Department's ongoing monitoring and site inspection program for geothermal wells, please submit an as-built diagram of existing well conditions for both Lanipuna No.6 and Ashida No.1 for our review and files.

Your attention and prompt response to the above will be greatly appreciated. Should you have any questions, please me at 548-7533.

Sincerely,



MANABU TAGOMORI  
Deputy Director

DN:bm

# BARNWELL GEOTHERMAL CORPORATION

89 JUL 27 AM: 21

July 26, 1989

DIV. OF WATER &  
LAND DEVELOPMENT

Mr. Manabu Tagomori, Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Division of Water and Land Development  
P. O. Box 373  
Honolulu, Hawaii 96809

Reference: Your Letter of May 31, 1989

Dear Mr. Tagomori:

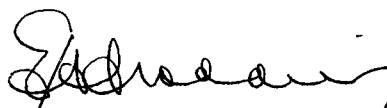
The wells referred to in the above referenced letter have been in part the subject of certain discussions and possible negotiation with Ormat, the successor to Puna Ventures.

There has been no decision yet as to the possible roles for these wells - ranging from injection use to monitoring use.

The geothermal program has moved very slowly over the past few years, but we hope for resolution within the next year.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

  
E. C. Craddick

ECC/sm

May 31, 1989

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

Dear Mr. Craddick:

Transmitted is a copy of the Department of Land and Natural Resources' letter dated October 9, 1987, concerning site inspections of geothermal wells--Lanipuna No. 1, Lanipuna No. 6, and Ashida No.1.

In our earlier letter, we indicated that all three wells appear to be deserted and improperly maintained. In addition, the Department requested a response as to why these wells should not be sealed and abandoned in accordance with our Department's Administrative Rules. To date, no acknowledgement or reply to this inquiry has been received.

Please be advised that pursuant to our rules (Chapter 13-183), the operator of a lease shall promptly plug and abandon any well that is deserted or not used or deemed not useful by the Board of Land and Natural Resources. Failure of the lessee to comply with this requirement shall authorize the Chairperson to cause the work to be performed at the expense of the lessee and the surety.

In regards to the above, the Department requires that you provide a report, as soon as possible, concerning the status of the subject wells and any rationale as to why they should not be properly plugged and abandoned. Should you have any questions, please contact Dan Lum at 548-7643.

Sincerely,

  
MANABU TAGOMORI  
Deputy Director

DN:ko  
Attach.

October 9, 1987

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

Dear Mr. Craddick:

In accordance with Section 13-183-6 of the Department of Land and Natural Resources' Administrative Rules on the Leasing and Drilling of Geothermal Resources, our Department recently conducted site inspections of the following geothermal wells drilled by your firm:

Lanipuna No. 1

It was noted that the original access road is overgrown with vegetation and macadamia nut trees. Our personnel were unable to reach the well and concrete cellar due to the thick overgrowth. Whether or not the well and concrete cellar are properly fenced or otherwise protected could not be determined.

The entrance to the alternate access road was found posted with "No Trespass" signs and guarded by two dogs. A house or temporary shelter was noted back among the trees.

Lanipuna No. 6

The gate to the access road was found open and the site vacant at the time of inspection. The well site is apparently being used for storage of well drilling equipment. The well and concrete cellar are enclosed by a fence. However, the area is overgrown with vegetation.

Ashida No. 1

The access road gate was locked and "No Entry" and "No Trespass" signs were posted at the entrance. We were unable to inspect the well site due to inaccessibility.

According to your letter dated March 2, 1987, these three wells were being considered for possible use as geothermal injection wells. However, according to Section 13-183-80 of the Department's Administrative Rules, the wells must be properly maintained and provisions made for access and inspection by our Department.

Mr. E C. Craddick

-2-

October 9, 1987

Also, under Section 13-183-82 of the Administrative Rules, the operator of any well shall promptly plug and abandon any well that is deserted, not in use, or is deemed not to be potentially useful. Since all three wells appear to be deserted, not in use, and potentially not useful in the foreseeable future, we request you advise us why the wells should not be sealed and abandoned, in accordance with the Department's Administrative Rules.

Sincerely,

MANABU TAGOMORI  
Manager-Chief Engineer

DN:DL:dh

October 9, 1987

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

Dear Mr. Craddick:

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Mr. E C. Craddick

-2-

October 9, 1987

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Sincerely,

MANABU TAGOMORI  
Manager-Chief Engineer

DN:DL:dh

# BARNWELL GEOTHERMAL CORPORATION

27 11 18:25  
March 2, 1987

Mr. Albert Lono Lyman, Director  
Planning Department  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Special Permits 80-347 (LUC 460),  
77-265 (LUC 364), and 471  
Biannual Status Reports Due January, 1987

Dear Mr. Lyman:

This is to advise that there has been no change in the status of our plans since the last report, and that none are contemplated for the next six (6) months.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick  
President

ECC/sm

cc: ✓ Mr. Manabu Tagomori, DLNR



November 6, 1986

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

Dear Mr. Craddick:

In response to your request to reissue bonds for Lanipuna #1 and #6, please be advised that the bonds may not be reissued through Water Resources International, Inc.

Barnwell Geothermal Corporation, as well permittee and operator of record, shall remain as the principal bound unto the State of Hawaii in the sum of \$50,000 each for Lanipuna #1 and #6.

Should you have any questions, please contact Mr. Albert Ching at 548-7619.

As the original bonding was from Barnwell Geothermal Corporation, please advise if you have no objection to a removal of the bond from Water Resources International, Inc. rather than Barnwell Geothermal Corporation.

Sincerely,

Very truly yours,

MANABU TAGOMORI  
Manager-Chief Engineer

DN:dh

# BARNWELL GEOTHERMAL CORPORATION

0611 29 All: 02

DEPT. OF WATER &  
LAND DEVELOPMENT

October 24, 1986

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

Attention: Mr. Albert Ching

Reference: Geothermal Resources Well  
Indemnity Bond #YS-845-8885 - Lanipuna #6 and  
Indemnity Bond #YS-845-7457 - Lanipuna #1

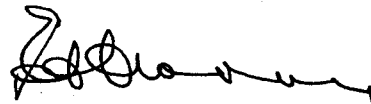
Gentlemen:

We have recently changed bonding companies and are structured for bonding Water Resources International, Inc. only rather than the affiliate, Barnwell Geothermal Corporation.

As the original bonding was from Barnwell Geothermal Corporation, please advise if you have no objection to a reissue of the bonds by Water Resources International, Inc. rather than Barnwell Geothermal Corporation.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

ECC/sm

July 1, 1986

Ms. Patti Barak  
Surety Department  
Industrial Indemnity Company  
4201 Long Beach Blvd., Suite 204  
Long Beach, California 90807

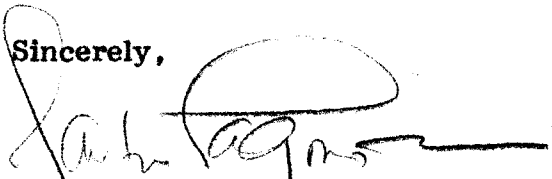
Dear Ms. Barak:

This is in response to your recent status inquiry concerning Well Indemnity Bond No. YS 845-7457 issued to Barnwell Geothermal Corporation for geothermal well Lanipuna No. 1, TMK: 1-3-9:07.

The bond is a requirement until such time that Lanipuna Well No. 1 is abandoned, although the permit has expired and all drilling operations have been suspended.

Barnwell Geothermal Corp. has not submitted any proposed plans for abandonment and has informed us that the status of the well is pending. Therefore, the bond covering Lanipuna No. 1, shall remain in full force and effect until the well is properly abandoned in accordance with regulations.

Sincerely,



MANABU TAGOMORI  
Manager-Chief Engineer

DN:ko  
cc: Barnwell Corp.

July 1, 1980

Mr. Patti Bursak  
Bureau of Land Management  
Industrial Community Company  
1201 Long Beach Blvd., Suite 204  
Long Beach, California 90807

Dear Mr. Bursak:

This is in response to your recent status inquiry concerning well  
Industrial Bond No. YS 845-7457 issued to Garwood Geothermal  
Corporation for geothermal well permits No. 1, TMM: 1-3-8-07.

The bond is a requirement with each time that permits No. 1  
is abandoned, although the permit has expired and all drilling operations  
have been suspended.

Garwood Geothermal Corp. has not submitted any proposed plans  
for abandonment and has informed us that the status of the well is  
pending. Therefore, the bond covering permits No. 1, shall remain in  
full force and effect until the well is properly abandoned in accordance  
with regulations.

Sincerely,

KARL TAYLOR  
Inspector-Chief Engineer

DN:ko  
cc: Garwood Corp.

INDUSTRIAL INDEMNITY COMPANY  
HOME OFFICE  
San Francisco, California

 **Industrial Indemnity**  
a Crum and Forster organization  
4201 Long Beach Blvd.  
Suite 204  
Long Beach, California 90807

# General Form Status Inquiry

Owner, Obligor or Originating Company State of Hawaii		Date June 3, 1986
Address Dept. of Land & Natural Resources P.O. Box 621 Honolulu, HI 96809		Our Bond No. YS845-7457
Contractor BARNWELL GEOTHERMAL CORPORATION		
Address c/o 2828 Paa St., Honolulu, HI		
Description of Contract (Include location and owner's contract number) GEOTHERMAL RESOURCES WELL INDEMNITY BOND - Well Designation: Lanipuna No. 1 Site Designation: Easement "GW-5" (2 acs.) Location: TMK 1-3-9:7, Keahialaka, Puna Hawaii		
Owner		
Contract Price \$	Bond(s) \$ 50,000.	Effective Date 8/16/82

Without prejudicing your right or affecting our liability under our bond(s) described above, we would appreciate such information as is now available.

Sincerely,



By

Patti Barak - Surety Department

1. If contract completed, please state: Approximate date of completion of work (or final delivery) Approximate acceptance date Final contract price \$		It is understood that the information contained herein is furnished as a matter of courtesy for the confidential use of the surety and is merely an expression of opinion. It is also agreed that in furnishing this information, <u>no guaranty or warranty of accuracy or correctness is made and no responsibility is assumed as a result of reliance by the surety, whether such information is furnished by the owner or by an architect or engineer as the agents of the owner.</u>
2. If contract uncompleted, please state: Approximate percentage or dollar amount of contract completed or delivered		
3. Do you know of any unpaid bills for labor or materials? If "Yes" please comment. <input type="checkbox"/> Yes <input type="checkbox"/> No		
4. Remarks (if any)		
Date 19	Signature	Title
PLEASE RETURN THIS INQUIRY IN THE ENCLOSED ENVELOPE.	Address	
	Attention	

RECEIVED

86 JUN 9 AM : 26

DIV. OF WATER &  
LAND DEVELOPMENT

# BARNWELL GEOTHERMAL CORPORATION

May 20, 1986

DEPT. OF WATER &  
LAND DEVELOPMENT

86 MAY 23 4:45

RECEIVED

Mr. Albert Lono Lyman, Director  
Planning Department  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

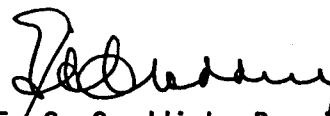
Special Permits 80-347 (LUC 460),  
77-265 (LUC 364), and 471  
Biannual Status Reports Due July, 1986

Dear Mr. Lyman:

This is to advise that there has been no change in the status of our plans since the last report, and that none are contemplated for the next six (6) months.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

  
E. C. Craddick, President

ECC:sm

cc: ✓ Mr. Manabu Tagomori, DLNR

Dear

OCT 16 1985

Mr. W.R. Craddick  
Vice President  
Barnwell Geothermal Corp.  
2828 Paa Street, Suite 2085  
Honolulu, Hawaii 96819

Dear Mr. Craddick:

The Department of Land and Natural Resources has received your request for a Well Abandonment Permit for Lanipuna Well No. 1. Prior to the Department's approval and issuance of a permit, a revised application must be submitted and should include the following items:


- 1) A non-refundable filing fee of \$100.
- 2) Diagram of existing condition of well.
- 3) Drawing of proposed method of plugging and abandonment.
- 4) Proposed plan of abandonment outlining in detail the step-by-step program.
- 5) Type of heavy drilling fluid to be used to fill all portions of the hole not plugged with cement.

Upon completion of the abandonment, a history of the well shall be filed with the Department within sixty days after completion. In addition, documentation that the site has been properly restored to the landowner's satisfaction should also be submitted.

The bond covering the well shall remain in full force and effect until the well is properly abandoned and the surface properly restored.

If you should have any questions, please contact Manabu Tagomori at the Division of Water and Land Development, phone 548-7533.

Very truly yours,

  
SUSUMU ONO  
Chairperson of the Board



1107  
RECEIVED BARNWELL GEOTHERMAL CORPORATION RECEIVED

85 SEP 9 A10:00

85 SEP 6 A8:39

DIV. OF WATER &  
LAND DEVELOPMENT

September 4, 1985

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

Mr. Susumo Ono, Chairman  
State of Hawaii  
Department of Land and Natural Resources  
P. O. Box 621  
Honolulu, Hawaii 96809

Reference: Lanipuna Well No. 1  
Application for Permit to Plug and Abandon

Dear Mr. Ono:

Please accept this letter as an application for permit to plug and abandon our geothermal exploratory well designated "Lanipuna #1". As there was no geothermal resource encountered in either the original hole or the deviated hole, we are proposing plugging and abandoning the well. Enclosed is a drawing of the existing well conditions and a drawing of our proposed method of plugging and abandonment. Regarding site restoration, we propose to restore the site to the land owner's satisfaction and will furnish you with documentation of this fact after the site has been restored.

Should you require any clarification or have any questions regarding this matter, please contact W. R. (Bill) Craddick or Clarence Mason by telephoning our Hilo Office No. 969-1648.

We would appreciate your favorable consideration to this.

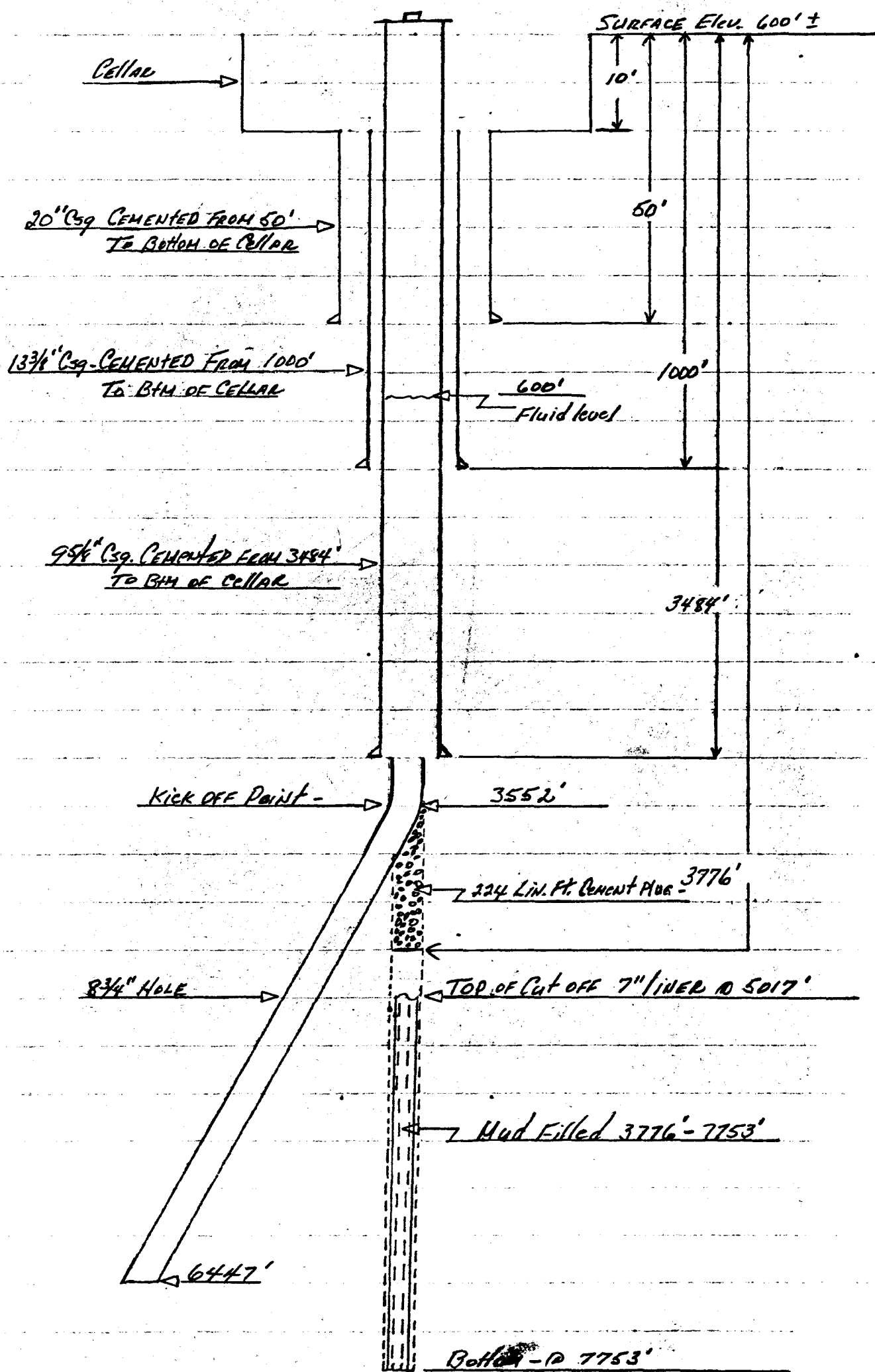
Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

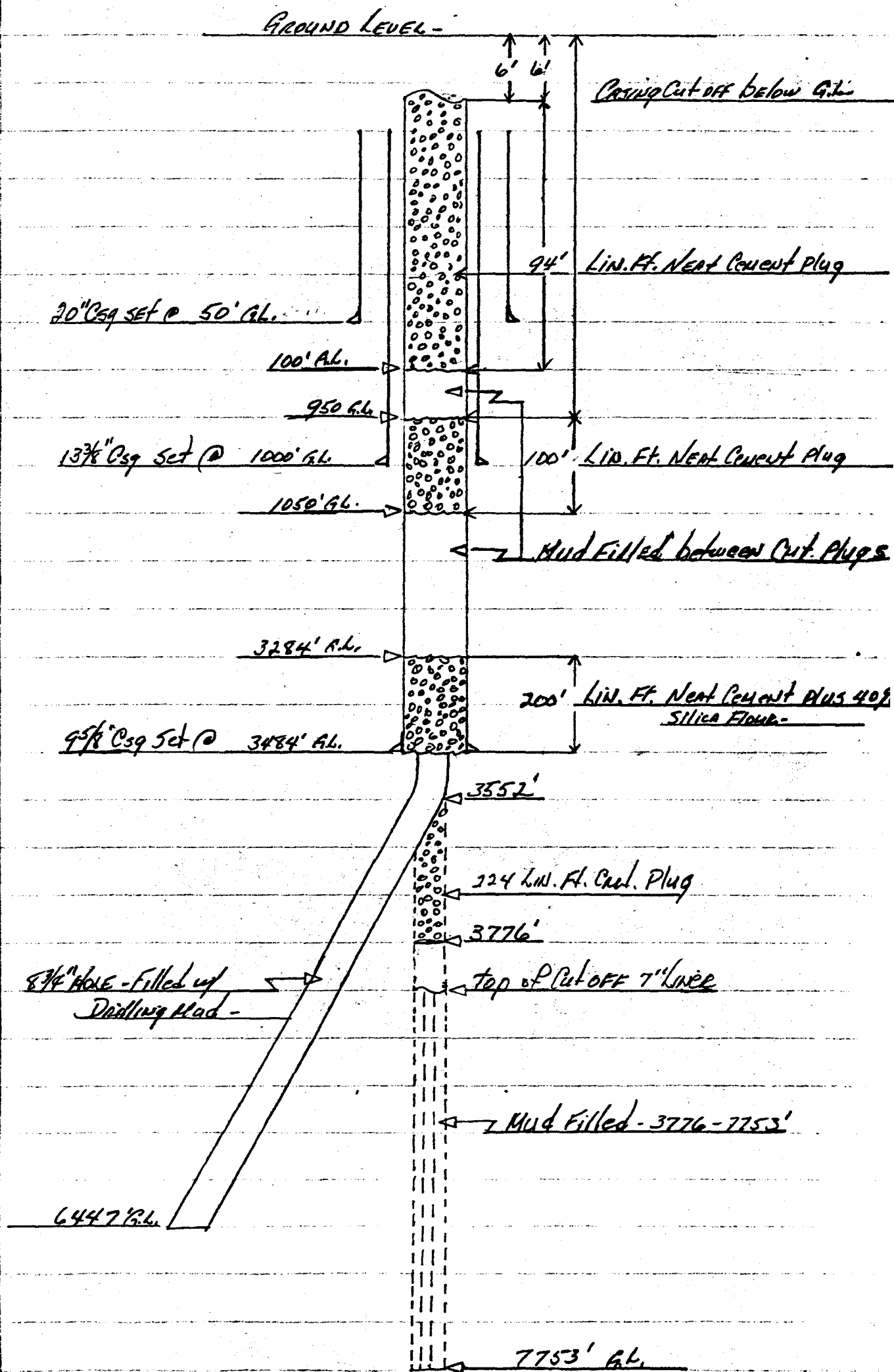
  
W. R. Craddick  
Vice President

WRC/sm  
Encl.  
cc: Hilo Office

# LANIPUNA No. 1 - EXISTING CONDITIONS



LANIDUNA No. 1  
PROPOSED PLUGGING & ABANDONMENT



# WATER RESOURCES & FLOOD CONTROL BRANCH

From: Dean

Date: 8/13

File in:                     

To Initial

_____	Manabu Tagomori	_____	See me
_____	Albert Ching	_____	Call
_____	Daniel Lum	_____	Take action by _____
_____	George Matsumoto	_____	Review & comment
_____	Nobu Kaneshiro	_____	Draft reply by _____
_____	Tom Nakama	_____	Type draft
_____	Paul Matsuo	_____	Type final
_____	Edwin Sakoda	_____	Xerox _____ copies
_____	Neal Imada	_____	Mail
_____	Joe Menor	_____	Acknowledge receipt
_____	Jon Kurio		
_____	Mitchell Ohye		
_____	Sherrie Samuels	_____	Approval
_____	Kay Oshiro	_____	Signature
_____	Doris Hamada	✓	Information

_____	R. Chuck	_____	J. Sakai	_____	B. Koyanagi
_____	T. Fujii	_____	E. Yonamine	_____	R. Jinnai
_____	J. Yoshimoto	_____		_____	

(8/9/85)  
 Per phone call from Clarence Mason of  
 WRII in Hilo (969-1648), Barnwell plans  
 to abandon Lanipuna #1 and will submit  
 an application for permit to abandon.  
 The following info was rec'd from Mr. Mason:  
 note all measurements taken from RKB (18' above  
 ground elevation).  
 20" casing set to 68' depth  
 13 7/8" " " " 1018' depth  
 9 5/8" " " " 3,502' depth  
 7" slotted liner casing w/ 9 5/8" casing to 7,872' depth  
 Total depth of hole 8389'  
 7" liner recovered from 5,035' depth and up  
 Cement plug from 3,495' to 3,763' depth  
 Sidetrack kick-off point @ 3,510' depth  
 see attachment for proposed abandonment plans

RKB-18' Lamin #1

20" 68 RKB cement

13<sup>3</sup>/<sub>8</sub><sup>cen</sup> to 1018 RKB cemented

9<sup>5</sup>/<sub>8</sub> to 3502 RKB cemented

7" spotted 7800 straight. 8389 T.D.  
liner 7872'

Recovered 7" lines to 5200 ±  
Set cement plug 3700' to 3502'

Directional Hole 3700' — 6500 ±

Proposed to set 200' cement 3502' — 3302'

Proposed 100' across 1018'

Proposed plug 20"

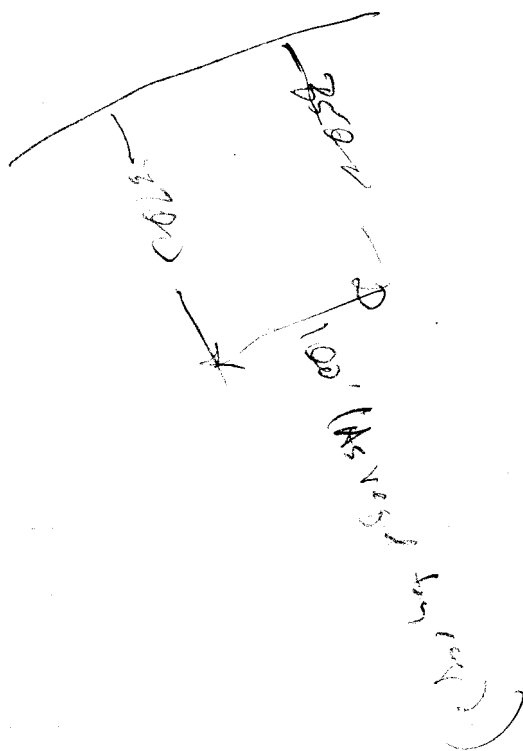
8/9/85

Campani #1

1st October

7" liner cut off at 5035'  
plug at 3794' - 3495' - 3570'  
Directional Hole  
Kick off at 3570'

John Tolmie — Landowner  
(808) 959 660



# WATER RESOURCES & FLOOD CONTROL BRANCH

From: Dean

Date: 3/15/84

File in: Langui No 1

To Initial

☒ Manabu Tagomori  
☐ Albert Ching  
☐ Daniel Lum  
☐ George Matsumoto  
☐ Nobu Kaneshiro  
☐ Tom Nakama  
☐ Paul Matsuo  
☐ Edwin Sakoda  
☐ Neal Imada  
☐ Joe Menor  
☐ Jon Kurio  
☐ Mitchell Ohye  
☐ Sherrie Samuels  
☐ Kay Oshiro  
☐ Doris Hamada

☐ See me  
☐ Call  
☐ Take action by \_\_\_\_\_  
☐ Review & comment  
☐ Draft reply by \_\_\_\_\_  
☐ Type draft  
☐ Type final  
☐ Xerox \_\_\_\_\_ copies  
☐ Mail  
☐ Acknowledge receipt

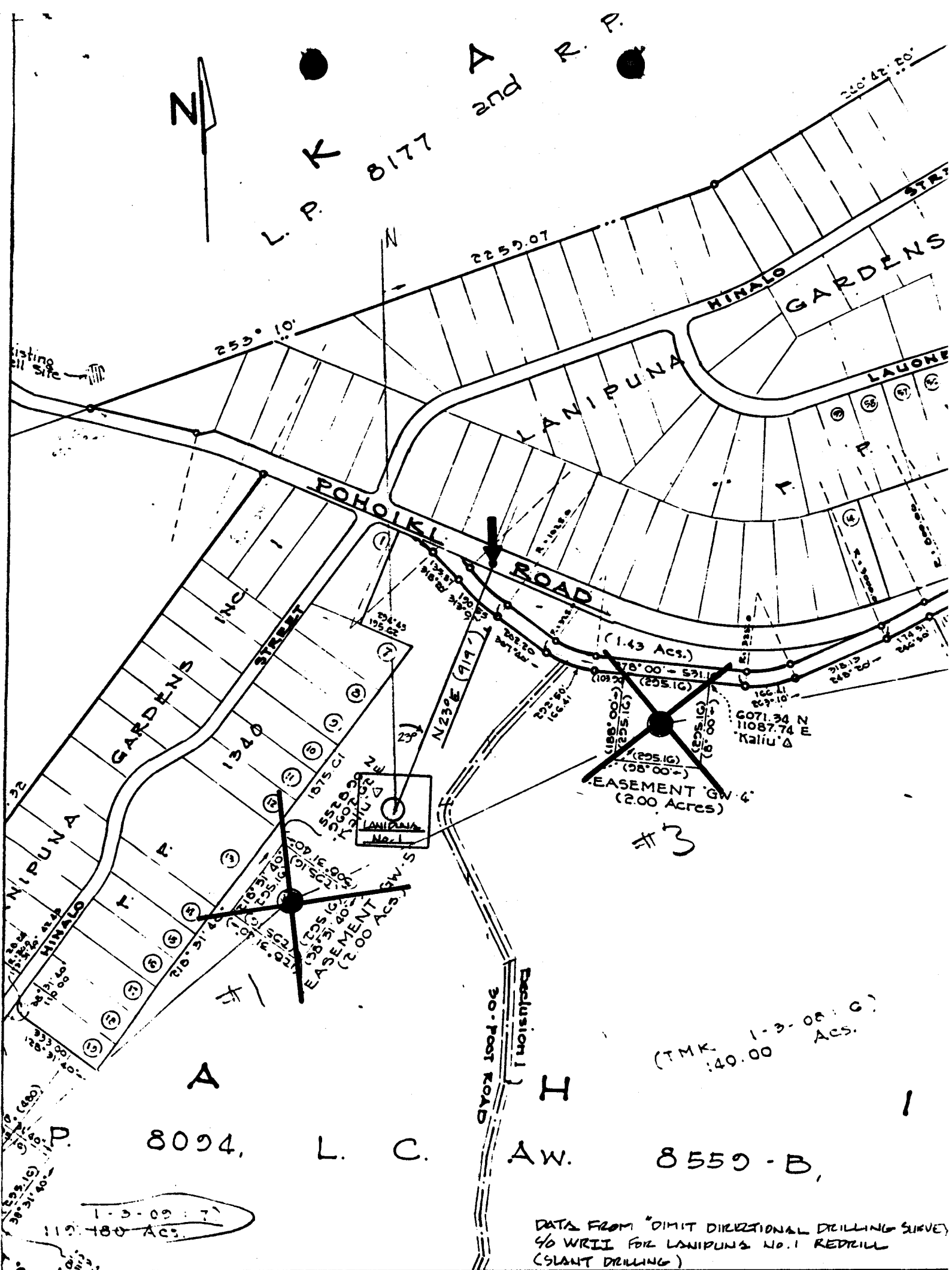
☐ Approval  
☐ Signature  
☒ Information

\_\_\_\_ R. Chuck      \_\_\_\_ J. Sakai      \_\_\_\_ B. Koyanagi  
 \_\_\_\_ T. Fujii      \_\_\_\_ E. Yonamine      \_\_\_\_ R. Jinnai  
 \_\_\_\_ J. Yoshimoto      Dean

PER YOUR REQUEST, ATTACHED ARE MAPS  
 INDICATING DIRECTION AND EXTENT OF  
 DIRECTIONAL DRILLING FOR LANIPUNA #1  
 WHICH WAS DRILLED N23°E FOR  
 919', APPARENTLY TERMINATING UNDER  
 POHOIKI ROAD.

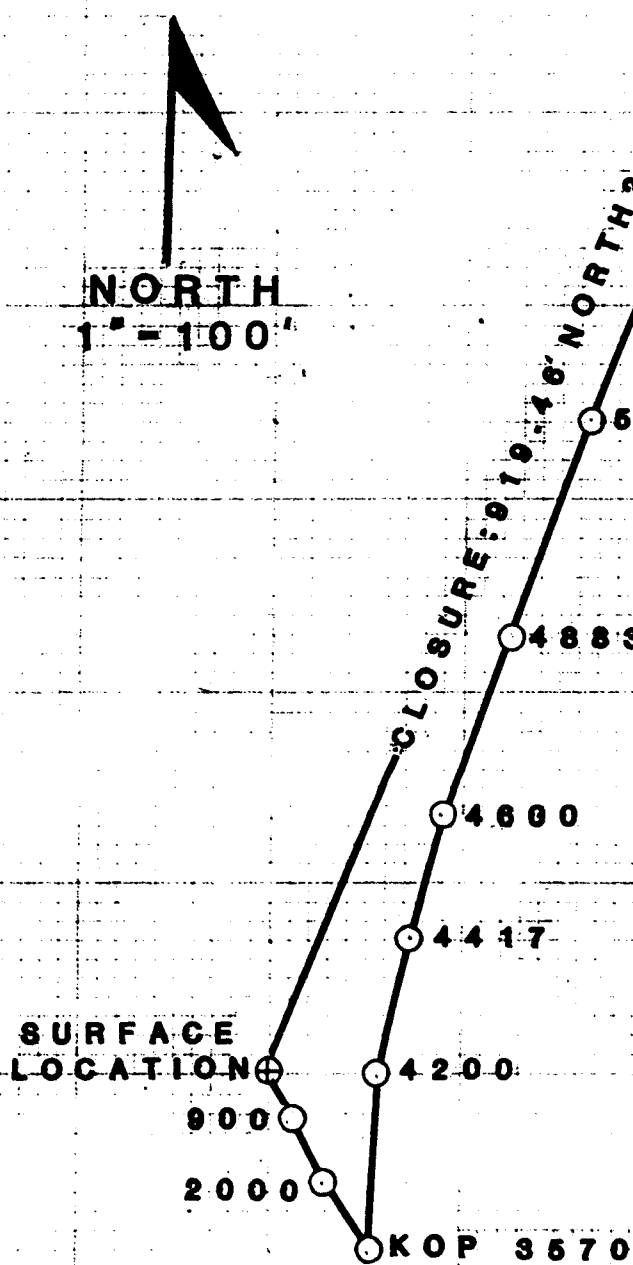
ALSO NOTED IS THE POTENTIAL DRILLING  
 DEVIATION THAT MAY OCCUR FOR  
 LANIPUNA #6 (ASSUMING THE AMT. OF  
 DRIFT FOR KAPOHO STATE #1), LANIPUNA  
 #6 MAY END UP IN THERMAL POWER'S  
 LEASED AREA GRML-12-2 INSTEAD OF  
 BARNWELL'S LEASE GRML-R-3.

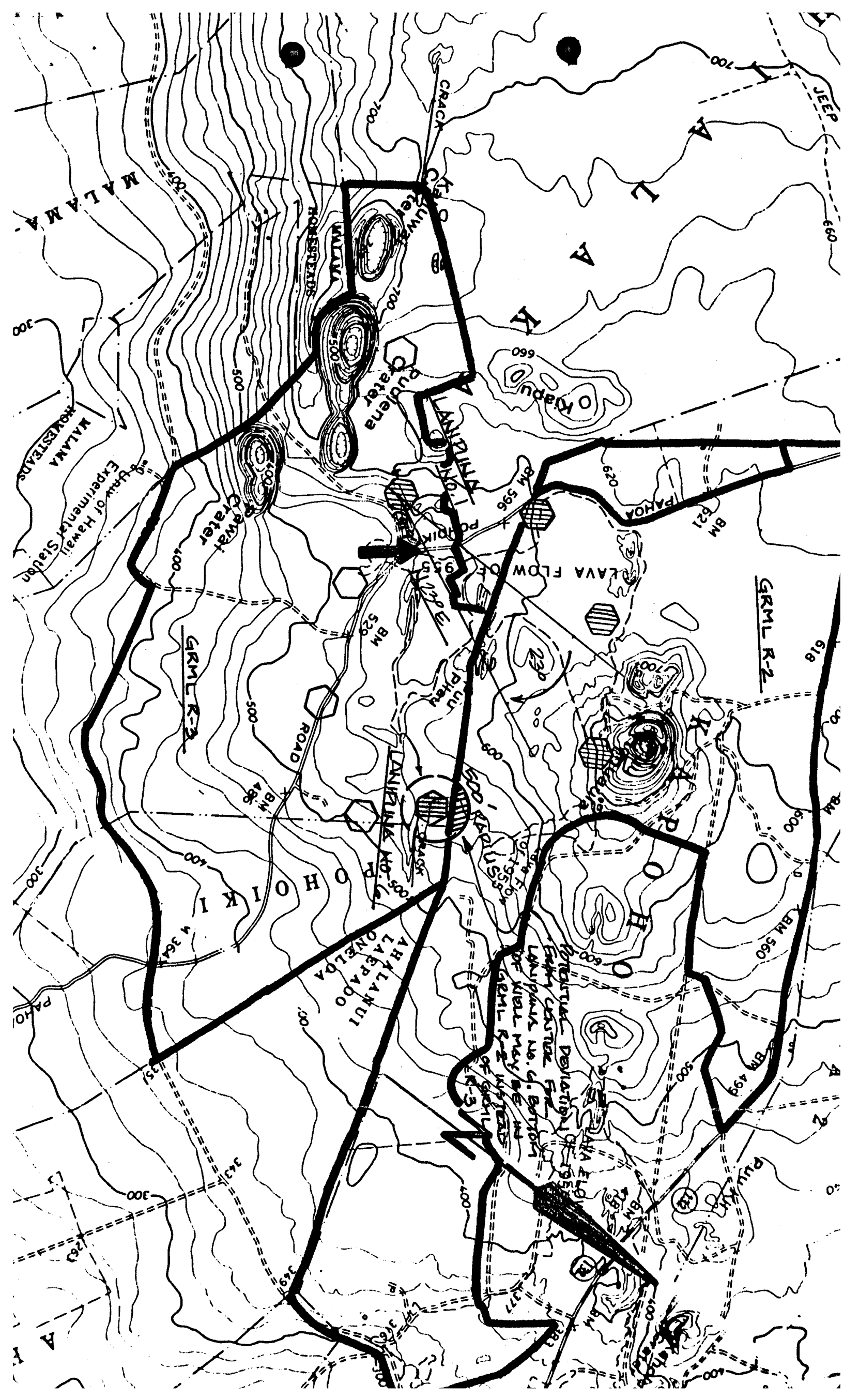
Dean





WATER RESOURCES INTL.  
LANIPUNA #1 REDRILL





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

**Marsh &  
McLennan**

Marsh & McLennan Incorporated  
P.O. Box 38, Honolulu, Hawaii 96810  
Telephone (808) 531-4211

RECEIVED

13 OCT 21 8:33

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

SECOND REQUEST

October 20, 1983

State of Hawaii  
Department of Land & Natural Resources  
P. O. Box 621  
Honolulu, Hawaii 96809

Gentlemen:

Re: Barnwell Geothermal Corporation, Bond No. YS 845-7457  
Geothermal Resources Well Indemnity Bond  
Lanipuna #1, TMK: 1-3-9:7

We appreciate your assistance in determining the status of the  
captioned bond which was issued by us. Is this project completed  
and if so, what is the date?

Thank you for your cooperation.

Very truly yours,

INDUSTRIAL INDEMNITY COMPANY

*June Kukino*  
June Kukino  
Attorney-in-fact

MAUI

P.O. Box 577  
Kahului, Hawaii 96732  
Telephone 877-6541

KAUAI

P.O. Box 1764  
Lihue, Hawaii 96766  
Telephone 245-3911

HAWAII

345 Kekuanaoa Street  
Hilo, Hawaii 96720  
Telephone 961-3771

Real -  
file

October 18, 1983

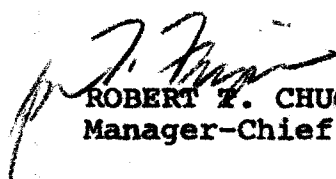
Ms. June Kukino  
Attorney-in-Fact  
Marsh & McLennan, Inc.  
P.O. Box 38  
Honolulu, Hawaii 96810

Dear Ms. Kukino:

Barnwell Geothermal Corporation  
Bond No. YS 845-7457  
Geothermal Resources Well Indemnity Bond,  
Lanipuna #1, TMK: 1-3-9:7

This is in reponse to your inquiry of October 6, 1983, regarding Bond No. YS 845-7457. A geothermal indemnity bond remains in force for the life of the well and may not be released until the well is properly abandoned as determined by the Chairperson of the Board of Land and Natural Resources. We have had no correspondence from Barnwell Geothermal Corporation indicating their intention to abandon the Lanipuna #1 well.

Very truly yours,

  
ROBERT T. CHUCK  
Manager-Chief Engineer

NI:ko

**Marsh &  
McLennan**

1650

Marsh & McLennan, Incorporated  
P.O. Box 38, Honolulu, Hawaii 96810  
Telephone (808) 531-4211

RECEIVED

33 OCT 12 8:14

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

October 6, 1983

DEPT. OF WATER  
& DEVELOPMENT

33 OCT 12 3:29

RECEIVED

State of Hawaii  
Department of Land & Natural Resources  
P. O. Box 621  
Honolulu, Hawaii 96809

Gentlemen:

Re: Barnwell Geothermal Corporation, Bond No. YS 845-7457  
Geothermal Resources Well Indemnity Bond  
Lanipuna #1, TMK: 1-3-9:7

We appreciate your assistance in determining the status of the  
captioned bond which was issued by us. Is this project completed  
and if so, what is the date?

Thank you for your cooperation.

Very truly yours,

INDUSTRIAL INDEMNITY COMPANY

*June Kukino*  
June Kukino  
Attorney-in-fact

MAUI

P.O. Box 577  
Kahului, Hawaii 96732  
Telephone 877-6541

KAUAI

P.O. Box 1764  
Lihue, Hawaii 96766  
Telephone 245-3911

HAWAII

345 Kekuanaoa Street  
Hilo, Hawaii 96720  
Telephone 961-3771

Info should be  
submitted by 12/26/83

August 23, 1983

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

Dear Mr. Craddick:

Thank you for sending us two sets of the Directional Survey for Lanipuna Well No. 1. In addition to the Directional Survey, the following shall be submitted by December 1983, six months after completion of the drilling:

1. Drilling log and core report. The drilling log and core report shall show the lithologic characteristics and depths of strata encountered, the depths and temperatures of ground water-bearing and geothermal water-bearing strata, and the temperature, chemical compositions, and other chemical characteristics of fluids encountered from time to time, so far as ascertained. The report shall show the depth, lithologic characteristics, and chemical content of cores obtained, so far as determined.
2. Well history report. The well history report shall describe in detail the operations carried out on a daily basis all significant operations carried out and equipment used. The report 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 completion of a well at the time of completion of the well.

Please notify us, in writing, if you plan to drill or conduct tests at the Lanipuna No. 1 site in the future. Thank you very much for your cooperation.

Very truly yours,

/s/ SUSUMU GAO

SUSUMU GAO  
Chairperson of the Board

RTC:ES:ko

August 23, 1983

Mr. H. C. Cradick, President  
Harmwell Geothermal Corporation  
2828 Koa Street, Suite 2025  
Honolulu, Hawaii 96819

Dear Mr. Cradick:

Thank you for sending us two sets of the Directional  
Survey for Lanihale Well No. 1. In addition to the Direc-  
tional Survey, the following shall be filed by December 26,  
1983, six months after completion of the redrilling 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 zones of interest, 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  
conducted 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  
the well at the time of completion of the work.

I enclose herewith, in writing, if you plan to do any work  
or conduct tests at the Lanihale No. 1 site in the future.  
Thank you very much for your cooperation.

Very truly yours,

Respectfully,  
Honorable

Secretary of the Board  
Honorable



*Handwritten: Barnwell*

277

BARNWELL GEOTHERMAL CORPORATION

RECEIVED

83 AUG 4 9:04

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

August 3, 1983

RECEIVED

83 AUG 4 10:31

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

Mr. Susumo Ono, Chairman  
State of Hawaii  
Department of Land and Natural Resources  
P. O. Box 621  
Honolulu, Hawaii 96809

Reference: Lanipuna No. 1, Keahialaka, Puna, Hawaii  
Geothermal Well Re-Drilling Permit

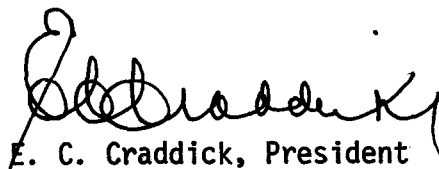
Dear Mr. Ono:

In accordance with Condition No. 1 of the above referenced permit issued on September 20, 1982, we are enclosing two (2) sets of the Directional Survey of the well.

The well will be kept as an observation well for the time being.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

  
E. C. Craddick, President

ECC/sm  
Encl.

cc: Bill Craddick - Hilo Office

BARNWELL GEOTHERMAL CORPORATION  
RECEIVED

83 JUN 30 A 8: 28

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

June 27, 1983

Mr. Sidney Fuke, Director  
Planning Department  
25 Aupuni Street  
Hilo, Hawaii 96720

Reference: Special Permit No. 471  
Status Report - Lanipuna Prospect

Dear Mr. Fuke:

Enclosed is our status report, covering the Lanipuna Prospect,  
which is due July 1, 1983.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

/sm  
Encl.

cc: ✓ Mr. Susumu Ono, DLNR - W/encl.

STATUS REPORT - LANIPUNA PROSPECT  
Due July 1, 1983

Reference: Special Permit No. 471  
Barnwell Geothermal Corporation  
TMK: 1-3-8:6, 7, 19 and 1-3-9:Portion of 7  
Approved - December 16, 1980  
Amended - November 18, 1981  
Expires - December 16, 1983

Work Undertaken

Lanipuna Well No. 1 was drilled in 1981, however, evaluation of the well indicated that additional work is needed to complete this work sufficiently for testing and evaluation.

Work was suspended pending the formulation of a corrective program, and the structuring of a funding plan.

Work resumed on May 10, 1983 on the slant hole drilling and is expected to be completed by July, 1983.

Proposed Work

Based on the evaluation and finding at Lanipuna Well No. 1, a selection will be made for the next drilling site on Lanipuna or on Daiichi prospects.

Noise and Complaints

We are prepared to drill with sound suppression equipment and to carry out monitoring activities at the site during the work. Complaints will be handled at our Hilo Office, Phone No. 969-1648.

Long Range Goals

Depending upon our findings, it will be necessary to extend the permit expiry date to allow us to drill at least three (3) successful exploratory wells, between 1983 and 1987.

This project, like the others, has also suffered from funding uncertainty due to the recessionary economy and difficulty in obtaining risk capital further aggravation by a reduction in oil prices, which make alternate sources less attractive to investors. We will, therefore, need a full understanding of these unavoidable causes for the program delay and the need for longer time frames within which to complete our exploratory program.

# WATER RESOURCES & FLOOD CONTROL BRANCH

From: 4/ Date: 6/23 File in: \_\_\_\_\_

To Initial

<input checked="" type="checkbox"/>	<u>Manabu Tagomori</u>	<input type="checkbox"/>	See me
<input checked="" type="checkbox"/>	<u>Albert Ching</u>	<input type="checkbox"/>	Call
<input checked="" type="checkbox"/>	<u>Daniel Lum</u>	<input type="checkbox"/>	Take action by _____
<input type="checkbox"/>	<u>George Matsumoto</u>	<input type="checkbox"/>	Review & comment
<input type="checkbox"/>	<u>Nobu Kaneshiro</u>	<input type="checkbox"/>	Draft reply by _____
<input type="checkbox"/>	<u>Tom Nakama</u>	<input type="checkbox"/>	Type draft
<input type="checkbox"/>	<u>Paul Matsuo</u>	<input type="checkbox"/>	Type final
<input checked="" type="checkbox"/>	<u>Edwin Sakoda</u>	<input type="checkbox"/>	Xerox _____ copies
<input checked="" type="checkbox"/>	<u>Neal Imada</u>	<input type="checkbox"/>	Mail
<input type="checkbox"/>	<u>Joe Menor</u>	<input type="checkbox"/>	Acknowledge receipt
<input type="checkbox"/>	<u>Jon Kurio</u>	<input type="checkbox"/>	
<input type="checkbox"/>	<u>Mitchell Ohye</u>	<input type="checkbox"/>	
<input type="checkbox"/>	<u>Sherrie Samuels</u>	<input type="checkbox"/>	Approval
<input type="checkbox"/>	<u>Kay Oshiro</u>	<input type="checkbox"/>	Signature
<input type="checkbox"/>	<u>Doris Hamada</u>	<input type="checkbox"/>	Information

<input type="checkbox"/>	<u>R. Chuck</u>	<input type="checkbox"/>	<u>J. Sakai</u>	<input type="checkbox"/>	<u>B. Koyanagi</u>
<input type="checkbox"/>	<u>T. Fujii</u>	<input type="checkbox"/>	<u>E. Yonamine</u>	<input type="checkbox"/>	<u>R. Jinnai</u>
<input type="checkbox"/>	<u>J. Yoshimoto</u>	<input type="checkbox"/>		<input type="checkbox"/>	

Plan again to  
 girls check form  
 well. Then I  
 other projects to  
 visit P.O. a trip,

We need to be on top of  
 this drinking drinking.

June 22, 1983

MEMORANDUM FOR THE RECORD

FROM: Ed Sakoda

SUBJECT: Lanipuna Well No. 1 - Directional Drilling

Geothermal Regulation §13-183-70 Directional Drilling, states: "The production or injection interval of a well shall be not less than one hundred feet from the outer boundary of the parcel into which it is drilled."

The proposed re-drilling work would place the bottom of the well beneath Pohoiki Road, outside the property boundary. If the "production or injection interval" included the bottom of the well, Barnwell would be violating the above section.



ED SAKODA

ES:ko

June 22, 1983

MEMORANDUM FOR THE RECORD

FROM: Ed Sakoda

SUBJECT: Lanipuna Well No. 1 - Directional Drilling

Geothermal Regulation #13-183-70 Directional Drilling, states: "The production or injection interval of a well shall be not less than one hundred feet from the outer boundary of the parcel into which it is drilled."

The proposed re-drilling work would place the bottom of the well beneath Pohoiki Road, outside the property boundary. If the "production or injection interval" included the bottom of the well, Barnwell would be violating the above section.



ED SAKODA

ES:ko

Sus,

We received notification from the driller that Lanipuna Geothermal Well No. 1 will be started up Monday, May 16, 1983,

We would like to have an inspector monitor the work. The DLNR drilling permit extends to Sept. 1983.

*Bob's done  
now Bob  
(175) 6/27*

# STATE OF HAWAII REQUISITION & PURCHASE ORDER

DEPARTMENT OF LAND AND NATURAL RESOURCES

ORGANIZATION

DOWALD

FUNCTION AND ACTIVITY

DELIVERY ADDRESS

Hawaiian Air

## INSTRUCTIONS TO VENDORS

Prices include delivery charges unless otherwise stated. Show Purchase Order Number, Date, Appropriation Symbol, and DISCOUNTS allowed on all invoices. The State reserves the right to reject any items supplied that are not in accordance with specifications even though payment has been made in order to obtain discounts. This is not a PURCHASE ORDER unless assigned a P. O. Number and authenticated by AUTHORIZED SIGNATURE.

PURCHASE  
ORDER NO.

C-59334

8-13

Date 05-11-83

Deliver to Organization as Shown

14-17

ON OR BEFORE

Send ORIGINAL and three (3) copies of INVOICE to:

DIV. OF WATER & LAND DEVELOPMENT

P.O. Box 373

Honolulu, Hawaii 96809

(The ORIGINAL INVOICE is required under sections 40-56 and 40-57, Hawaii Revised Statutes, before payment can be made.)

QUAN.	UNIT	DESCRIPTION	OBJECT	UNIT PRICE	AMOUNT
1	only	Roundtrip plane fare, Honolulu-Hilo-Honolulu  Lv: 5/16/83, 8:00 am, Flt 102 Rt: 5/16/83, 3:45 pm, Flt. 731  EDWIN SAKODA  APPROVED:  SUSUMU ONO, Chairman, Bd of Land & Nat. Res.			79.90

FILE

REQUISITION NO.

REQUISITIONER

TELEPHONE

VOUCHER  
NUMBER

AUTHENTICATED BY:

T. TAKEKAWA

AUTHORIZED SIGNATURE

GOODS/SERVICES RECEIVED BY

DATE

A		OP CODE	M9	VENDOR NO.	21-30	DELIVERY DATE	MO	DAY	YR	RELIEF CODE	37	NO. OF INVOICES	38	IF ONLY ONE INVOICE COMPLETE B BELOW		IF MORE THAN ONE INVOICE COMPLETE INVOICE LIST	
B		INV. NO.	19	INV. DATE	MO	DAY	YR	AMOUNT	37	REMITTANCE DATA	48						
UNIFORM ACCOUNTING CODE																	
TR	F	YR	APP	D	S/D	OBJECT	FUNCTION	L	PROJ.	ESTIMATED COST	ACTUAL COST	LIQ	OPTIONAL DEPARTMENT DATA				
C	22	G	83	043	C	150	4200	2000	0	0000	79.90						
D																	
E																	
F																	
G																	
H																	
I																	
J																	



# STATE OF HAWAII REQUISITION & PURCHASE ORDER

DEPARTMENT OF LAND AND NATURAL RESOURCES

ORGANIZATION

DONALD

FUNCTION AND ACTIVITY

DELIVERY ADDRESS

Hawaiian Air

## INSTRUCTIONS TO VENDORS

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PURCHASE  
ORDER NO.

C-50334

8-13

Date **05-11-83**

Deliver to Organization as Shown

14-17

ON OR BEFORE

Send ORIGINAL and three (3) copies of INVOICE to:

(The ORIGINAL INVOICE is required under sections 40-56 and 40-57, Hawaii Revised Statutes, before payment can be made.)

QUAN.	UNIT	DESCRIPTION	OBJECT	UNIT PRICE	AMOUNT
1	only	Roundtrip plane fare, Honolulu-Hilo-Honolulu  Lv: 5/10/83, 8:00 am, F/H 182 Rt: 5/10/83, 3:45 pm, F/H 731  EDWAIN SAKODA  APPROVED:  SUSUMU ONG, Chairman, Bd of Land & Nat. Res.			79.00

REQUISITION NO.

REQUISITIONER

TELEPHONE

VOUCHER  
NUMBER

AUTHENTICATED BY:

T. TAKIYAMA  
AUTHORIZED SIGNATURE

GOODS/SERVICES RECEIVED BY

DATE

A		OP CODE	VENDOR NO.	DELIVERY DATE	MO	DAY	YR	RELIEF CODE	NO. OF INVOICES	IF ONLY ONE INVOICE COMPLETE B BELOW		IF MORE THAN ONE INVOICE COMPLETE INVOICE LIST	
18		19	21-30	31-32	33-34	35-36	37	38					
B		INV. NO.	INV. DATE	MO	DAY	YR	AMOUNT	REMITTANCE DATA					
19		31					37	48					
UNIFORM ACCOUNTING CODE													
P	TR	F	YR	APP	D	S/D	OBJECT	FUNCTION	L	PROJ.	ESTIMATED COST	ACTUAL COST	LIQ
C	22	0	83	043	C	150	0300	3000	0	0000	79.00		
D													
E													
F													
G													
H													
I													
J													
18	19										44	44	55 56



DIV. OF WATER & LAND DEVELOPMENT  
Dept. of Land & Natural Resources  
RM. 227, 1151 PUNCHBOWL STREET  
HONOLULU, HAWAII 96813

DATE

5/10/83

TO

Files

FROM

Morton Tagomori

MEMORANDUM

SUBJECT

Lanipuna No. 1: Geothermal Well

Ed Craddock calls me to inform us that work on Lanipuna No. 1 is starting up. This week (May 9-13), rigging is being completed & drilling to start next week. I asked Ed to submit information in writing.

Jan

# BARNWELL GEOTHERMAL CORPORATION

May 9, 1983

Planning Department  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

RECEIVED  
83 MAY 13 9:00  
DIV. OF WATER &  
LAND DEVELOPMENT

Reference: Special Use Permit No. 471 (Amended)  
Expires - December 16, 1983  
Barnwell Geothermal Corporation  
Lanipuna Well No. 1  
Redrilling Permit Expires - 20 September 1983

Gentlemen:

This is to advise that our drilling rig has been moved back to Lanipuna Well No. 1 and will be set up this week, ready to begin kick-off operations approximately next week.

We expect this work to last about two (2) months, operating twenty-four (24) hours per day, five (5) days per week, except where conditions may require six or seven days such as during casing or cementing or other emergency work.

Sound abatement equipment is being used (same as on Kapoho State Wells for Thermal Power Company).

Safety precautions have been beefed up for the possibility of H<sub>2</sub>S, and personnel have received safety and working instructions accordingly.

Our local telephone in Hilo is 969-1648.

Our planned schedule is as follows:

May 10	Mobilizatio complete.
May 11-13	Ph. I - Cut off free portion of 7" liner and remove from 8-3/4" open hole.
May 16-June 17	Ph. II + Set kick-off at 3,570 feet. Side track hole, and build drift 3° per 100 feet to maximum 21", approximately direction N 26° E, to approximately 6,500 feet depth, drilling an 8-3/4" diameter hole.

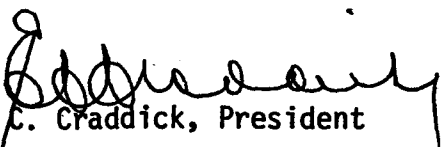
May 9, 1983

June 20-30

Ph. III - Run 7" liner, overlapping into 9-5/8" casing, and cement. Run 7" tie-back casing to surface and cement. Clean out liner and test.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

  
E. C. Craddick, President

ECC/sm

cc: Mr. Susumo Ono - DLNR, DOWALD  
Mr. Robert Chuck - DLNR, DOWALD  
Mr. Bill Craddick - Hilo  
Mr. D. J. Otwell - Honolulu  
Mr. J.S. Barnwell, Jr. - Shreveport  
Mr. S. Eisenstat - New York

DOWN

476

# BARNWELL GEOTHERMAL CORPORATION

RECEIVED

RECEIVED

May 9, 1983

83 MAY 16 P 2: 48

83 MAY 13 A 9: 26

Planning Department  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

DIV. OF WATER &  
LAND DEVELOPMENT

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

Reference: Special Use Permit No. 471 (Amended)  
Expires - December 16, 1983  
Barnwell Geothermal Corporation  
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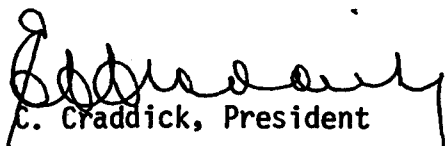
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Mr. Robert Chuck - DLNR, DOWALD  
Mr. Bill Craddick - Hilo  
Mr. D. J. Otwell - Honolulu  
Mr. J.S. Barnwell, Jr. - Shreveport  
Mr. S. Eisenstat - New York

DIVISION OF WATER AND LAND DEVELOPMENT

From: pte Date: 5/9 File In: \_\_\_\_\_

To Initial

RT Robert T. Chuck

TF Takeo Fujii

JY James Yoshimoto

MT Manabu Tagomori

George Morimoto

Herbert Morimatsu

George Miyashiro

Harold Sakai

Leslie Asari

Albert Ching

DM George Matsumoto

DL Daniel Lum

Paul Matsuo

Noboru Kaneshiro

ES Edwin Sakoda

mi Nealy

5/26 hrg.

See Me

Take action by \_\_\_\_\_

Route to your branch

Review & comment

Draft reply by \_\_\_\_\_

For information

Xerox distributed

Acknowledge receipt

File \_\_\_\_\_

Jane Sakai

Doris Hamada

Lorraine Nanbu

Jean Starot

Elsie Yonamine

Kay Oshiro

File copy w/ Janipone  
file

RECEIVED

RECEIVED

33 MAY 9 P 3: 30

83 MAY 9 A 8: 47

DIV. OF WATER &  
LAND DEVELOPMENT

PLANNING COMMISSION

Planning Department  
County of Hawaii

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

Agenda for the Meeting on Thursday, May 26, 1983  
James Costa's Property, Akolea Road, Ponahawai,  
South Hilo, Hawaii - 1:00 p.m.  
State Building, Conference Rooms A & B,  
South Hilo, Hawaii - 2:00 p.m.

SITE INSPECTION - 1:00 p.m.

James Costa's property for which an appeal has been filed on the Planning Director's denial of a change of zone application for 24.4 acres of land from an Agricultural 5-acre (A-5a) to an Agricultural 2-acre (A-2a) zoned district. The property is located on the makai side of Akolea Road, approximately 1,200 feet north of the Akolea Road-Akolea Plantation Subdivision Road intersection, Ponahawai, South Hilo, TMK: 2-5-6:131.

PUBLIC HEARINGS - 2:00 p.m.

1. Public hearing on the request filed by Geothermal Exploration and Development Corporation to delete Condition No. 4, as amended, of Special Permit No. 80-347 (LUC 460) which allowed the drilling and testing of a maximum of nine exploratory geothermal wells on approximately 180 acres of land situated within the State Land Use Agricultural District. Condition No. 4 states "That the drilling of the first well shall be completed within one (1) year from June 4, 1982, the effective date of approval of a time extension by the Land Use Commission." Also requested is an amendment to Condition No. 5 by extending the life of the Special Permit from February 13, 1984, to June 4, 1986. The property is located approximately 2,000 feet north of Pohoiki Road and about 1 mile northeast of the existing Hawaii Geothermal Project (HGP-A) site, Laepaoo, Puna, TMK: 1-4-02:10.
2. Public hearing on the request filed by Clarence Ching to delete Condition D of Change of Zone Ordinance No. 171 which rezoned a 1-acre property from a Residential-Agricultural .5 acre (RA-.5a) to a Resort-Hotel 1,500 square foot (V-1.5) zoned district. Condition D states that "The land shall only be used for the proposed drive-in restaurant and gift shop and the existing single family dwelling." The property is the present site of the Blacksand Beach Drive Inn & Gift Shop located along the mauka side of the Kalapana-Kaimu Beach Road and the Kaimu Beach Park (Blacksands Beach), Kaimu-Makena Homesteads, Kaimu, Puna, TMK: 1-2-04:92.
3. Continuation of a public hearing on the petition for an appeal filed by James Costa on the Planning Director's denial of a change of zone application for 24.4 acres of land from an Agricultural 5-acre (A-5a) to an Agricultural 2-acre (A-2a) zoned district. The property is located on the makai side of Akolea Road, approximately 1,200 feet north of the Akolea Road-Akolea Plantation Subdivision Road intersection, Ponahawai, South Hilo, TMK: 2-5-6:131.

FOR DAUGHTER  
No. 1?



PUBLIC HEARINGS - 3:00 p.m.

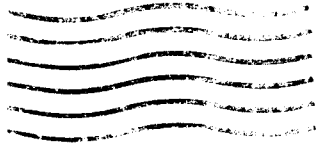
1. Public hearing on the application of James Kawano for a change of zone for 22,200 square feet of land from a Single Family Residential - 15,000 square foot (RS- 15) to a Single Family Residential - 10,000 square foot (RS-10) zoned district. The property is located along the west (mauka) side of Kehaulani Street, approximately 640 feet south (Puna side) of the Kehaulani Street-Kawailani Street intersection, Waiakea Homesteads, South Hilo, TMK: 2-4-10:33.
2. Public hearing on the application of Robert and Bess Davids for a Special Permit to allow the establishment of a pre-school within an existing single family dwelling situated on 1 acre of land within the State Land Use Agricultural District. The property is located along the northeast (makai) side of the Pahoa-Keaau Road, approximately 1,500 feet Hilo side of the Pahoa-Keaau Road and Paradise Drive intersection, Hawaiian Paradise Park Subdivision, Keaau, Puna, TMK: 1-5-33:252.

MINUTES - May 11 and 12, 1983

ADMINISTRATIVE MATTERS

ANNOUNCEMENTS

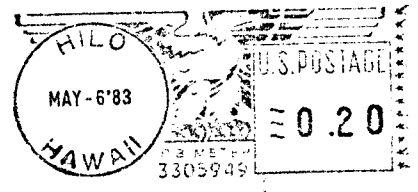
ADJOURNMENT



PLANNING DEPARTMENT  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720



Hawaii:  
the Big Island.



CHAIRMAN AND MEMBER  
BOARD OF LAND & NATURAL RES.  
P. O. BOX 621  
HONOLULU, HI 96809

DIVISION OF WATER AND LAND DEVELOPMENT

From: St. j Date: 11/15 File In: \_\_\_\_\_

To Initial

show \_\_\_\_\_ Robert T. Chuck

\_\_\_\_\_ Takeo Fujii

\_\_\_\_\_ James Yoshimoto

jas \_\_\_\_\_ Manabu Tagomori

\_\_\_\_\_ George Morimoto

\_\_\_\_\_ Herbert Morimatsu

\_\_\_\_\_ George Miyashiro

\_\_\_\_\_ Harold Sakai

\_\_\_\_\_ Leslie Asari

\_\_\_\_\_ Albert Ching

✓ dr \_\_\_\_\_ George Matsumoto

✓ \_\_\_\_\_ Daniel Lum

\_\_\_\_\_ Paul Matsuo

\_\_\_\_\_ Noboru Kaneshiro

✓ 47/ \_\_\_\_\_ Edwin Sakoda

✓ iii neal \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_ See Me

\_\_\_\_\_ Take action by \_\_\_\_\_

\_\_\_\_\_ Route to your branch

\_\_\_\_\_ Review & comment

\_\_\_\_\_ Draft reply by \_\_\_\_\_

\_\_\_\_\_ For information

\_\_\_\_\_ Xerox distributed

\_\_\_\_\_ Acknowledge receipt

\_\_\_\_\_ File \_\_\_\_\_

\_\_\_\_\_ Jane Sakai

\_\_\_\_\_ Doris Hamada

\_\_\_\_\_ Lorraine Nanbu

\_\_\_\_\_ Jean Starot

\_\_\_\_\_ Elsie Yonamine

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Bob — We called  
Cordrich for this  
status 1 hr,

# BARNWELL GEOTHERMAL CORPORATION

November 9, 1982

DIV. OF WATER &  
LAND DEVELOPMENT

82 NOV 15 P 3: 30

RECEIVED

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

Attention: M. Tagamori

Reference: Geothermal Well Re-Drilling Permit  
Lanipuna No. 1  
Keahialaka, Puna, Hawaii

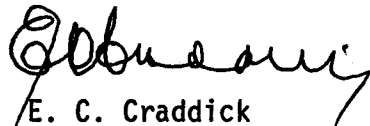
Dear Sir:

This is to advise that due to the necessity of re-scheduling our equipment and crews, drilling will not commence on the above site until approximately January/February 1983.

We shall advise you when we have a more precise schedule.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick  
President

ECC/glm

cc: Bill Craddick - Hilo Office

October 4, 1982

MEMORANDUM FOR THE RECORD

FROM: Neal Imada

SUBJECT: Field Check of Geothermal Well Sites,  
Pahoa, Hawaii

On October 1, 1982, 10:30 am, I conducted a field check of the geothermal well sites in Pahoa, Hawaii.

Status of Geothermal Well Sites

HGP-A: Personnel were observed within the fenced area. Gate was opened to allow delivery truck entrance and exit to site. See accompanying photo.

Kapoho State No. 1 and No. 2: Gate closed at entrance of roadway. Security guard mentioned no activity was going on at either well and that no personnel were on either site.

Lanipuna No. 1: Spoke with Bob Richardson of Water Resources International who was at the site. They are presently taking down drill rig set up over well. They will mobilize to another site along Saddle Road to drill a water well. It will take them roughly one week to disassemble rig.

Lanipuna No. 2: No activity.

Lanipuna No. 3: Well site only.

Daichi: Well site only.

*Neal Imada*  
NEAL IMADA

NI:ko  
Attach.

September 20, 1982

Mr. Charles Clark  
Director of Health  
Department of Health  
State of Hawaii  
Honolulu, Hawaii

Dear Mr. Clark:

Geothermal Well Re-Drilling Permit to Barnwell Corp.

For your information, the Department of Land and Natural Resources has issued a permit to Barnwell Geothermal Corp. for the re-drilling of their existing Lanipuna No. 1 geothermal well located at Keahialaka, Puna, Hawaii (TMK 1-3-9:7). The applicant has proposed the re-drilling work in an attempt to make the well capable of producing geothermal steam, after the initial drilling results to a depth of 7872+ ft. proved to be inconclusive.

A copy of the Well Permit which gives pertinent data on the existing well and a map showing the well's location are attached.

Very truly yours,

/s/SUSUMU ONO

SUSUMU ONO  
Chairman of the Board

Enc.

September 20, 1982

MEMORANDUM

TO: Division Heads

FROM: Susumu Ono

SUBJECT: Geothermal Well Re-Drilling Permit to Barnwell Geothermal Corp.

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/s/SUSUMU ONO

SUSUMU ONO  
Chairman of the Board

Enc.

September 20, 1982

Mr. Sidney Fuke  
Director  
Planning Department  
County of Hawaii  
Hilo, Hawaii 96720

Dear Mr. Fuke:

Geothermal Well Re-Drilling Permit to Barnwell Corp.

For your information, the Department of Land and Natural Resources has issued a permit to Barnwell Geothermal Corp. for the re-drilling of their existing Lanipuna No. 1 geothermal well located at Keahialaka, Puna, Hawaii (TMK 1-3-9:7). The applicant has proposed the re-drilling work in an attempt to make the well capable of producing geothermal steam, after the initial drilling results to a depth of 7872+ ft. proved to be inconclusive.

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Very truly yours,

/s/SUSUMUONO

SUSUMU ONO  
Chairman of the Board

Enc.



September 20, 1982

Mr. Hideto Kono  
Director  
Department of Planning &  
Economic Development  
State of Hawaii  
Kamamalu Bldg.  
250 S. King Street  
Honolulu, Hawaii 96813

Dear Mr. Kono:

Geothermal Well Re-Drilling  
Permit to Barnwell Corp.

For your information, the Department of Land and Natural Resources has issued a permit to Barnwell Geothermal Corp. for the re-drilling of their existing Lanipuna No. 1 geothermal well located at Keahialaka, Puna, Hawaii (TMK 1-3-9:7). The applicant has proposed the re-drilling work in an attempt to make the well capable of producing geothermal steam, after the initial drilling results to a depth of 787+ft. proved to be inconclusive.

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Very truly yours,

/s/SUSUMUONO

SUSUMU ONO  
Chairman of the Board

Enc.

September 20, 1982

Mrs. Jacqueline Parnell  
Interim Director  
Office of Environmental  
Quality Control  
550 Halekauwila Street  
Room 301  
Honolulu, Hawaii 96813

Dear Mrs. Parnell:

Geothermal Well Re-Drilling  
Permit to Barnwell Corp.

For your information, the Department of Land and Natural Resources has issued a permit to Barnwell Geothermal Corp. for the re-drilling of their existing Lanipuna No. 1 geothermal well located at Keahialaka, Puna, Hawaii (TMK 1-3-9:7). The applicant has proposed the re-drilling work in an attempt to make the well capable of producing geothermal steam, after the initial drilling results to a depth of 787- ft. proved to be inconclusive.

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Very truly yours,

/s/ SUSUMUONO

SUSUMU ONO  
Chairman of the Board

Enc.

September 20, 1982

MEMORANDUM

TO: Board Members

FROM: Susumu Ono

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/s/SUSUMU ONO

SUSUMU ONO  
Chairman of the Board

Enc.



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

GEOHERMAL WELL RE-DRILLING PERMIT

Lanipuna No. 1  
Keahialaka, Puna, Hawaii

TO: Barnwell Geothermal Corp.  
c/o 2828 Paa Street  
Honolulu, Hawaii 96819

Your application for a permit to re-drill existing Lanipuna No. 1 Well, described below, has been approved.

Well Designation: Lanipuna No. 1  
Site Designation: Easement "GW-5" (2 acs.)  
Location: TMK 1-3-9:7, Keahialaka, Puna, Hawaii  
19°28'16" Lat., 154°53'33" Long.  
Operator: Barnwell Geothermal Corp.  
Drilling Contractor: Water Resources International  
Ground Elevation: 600+ ft.  
Casing: 20-inch Dia., surface to 68 ft., cemented  
13-3/8-inch Dia., surface to 1018 ft., cemented  
9-5/8-inch Dia., surface to 3502 ft., cemented  
7-inch Dia., slotted liner, 3337 to 7872 ft.  
Existing Bottom of Hole: 7771 ft.

Proposed Re-drilling Work

- Remove portion of 7-inch liner.
- Beginning at a depth of 3570 ft., drill 8-3/4-inch hole in the direction of North 20° East at a deviation rate of 3° per 100 feet from vertical; final vertical depth of 6500 ft. and horizontal offset from vertical of 927 ft.
- Test the Well

You are hereby granted permission to re-drill and test Lanipuna No. 1 as outlined above and described in your application, all in accordance with the Department's Regulations, Chapter 183 of Title 13, Administrative Rules, and the following conditions:

- (1) The applicant shall make a wireline down-hole directional survey of the well from the surface to total depth during or after completion of the re-drilling work to confirm satisfactorily the "as-built" directional hole. The detailed records of the directional survey shall be submitted to the Department within 60 days after the 7-inch liner has been cleaned out.
- (2) This permit is only for re-drilling and testing the well and does not imply or confer any approval or rights to use the well for geothermal production.
- (3) Issuance of this permit does not constitute a waiver of any State claim to the geothermal rights.
- (4) This permit shall expire 365 days from the date of this permit.
- (5) The applicant shall comply with all valid requirements of all municipal, state and federal authorities and observe all municipal, state and federal laws and regulations pertaining to the lands and permittee's operations, which are now in force or which may hereafter be in force, including, but not limited to, all water and air pollution control laws, and those relating to the environment. The State of Hawaii, acting in its governmental capacity, may by regulation regulate the drilling, location, spacing, testing, completion, production, operation, maintenance and abandonment of a well or wells or similar activity as well as the construction, operation and maintenance of any other facilities in the exercise of its police powers to protect the public health, welfare and safety as provided in the regulations.
- (6) Pollution of the ocean and tidelands, rivers, or other bodies of water, and all impairment of and interference with bathing, fishing, or navigation in the waters of the ocean or any bay or inlet thereof is prohibited, and no brine, minerals, or any refuse of any kind from any well or works shall be permitted to be deposited on or pass into waters of the ocean, any bay or inlet thereof, rivers, lakes or other bodies of water, without specific written State authorization.
- (7) No substances which may be produced from any well drilled upon the lands shall be blown, flowed, or allowed to escape into the open air or on the ground in such a manner as to create a nuisance, which shall specifically include but not be limited to noise, air or other pollution, and other activities which disturb

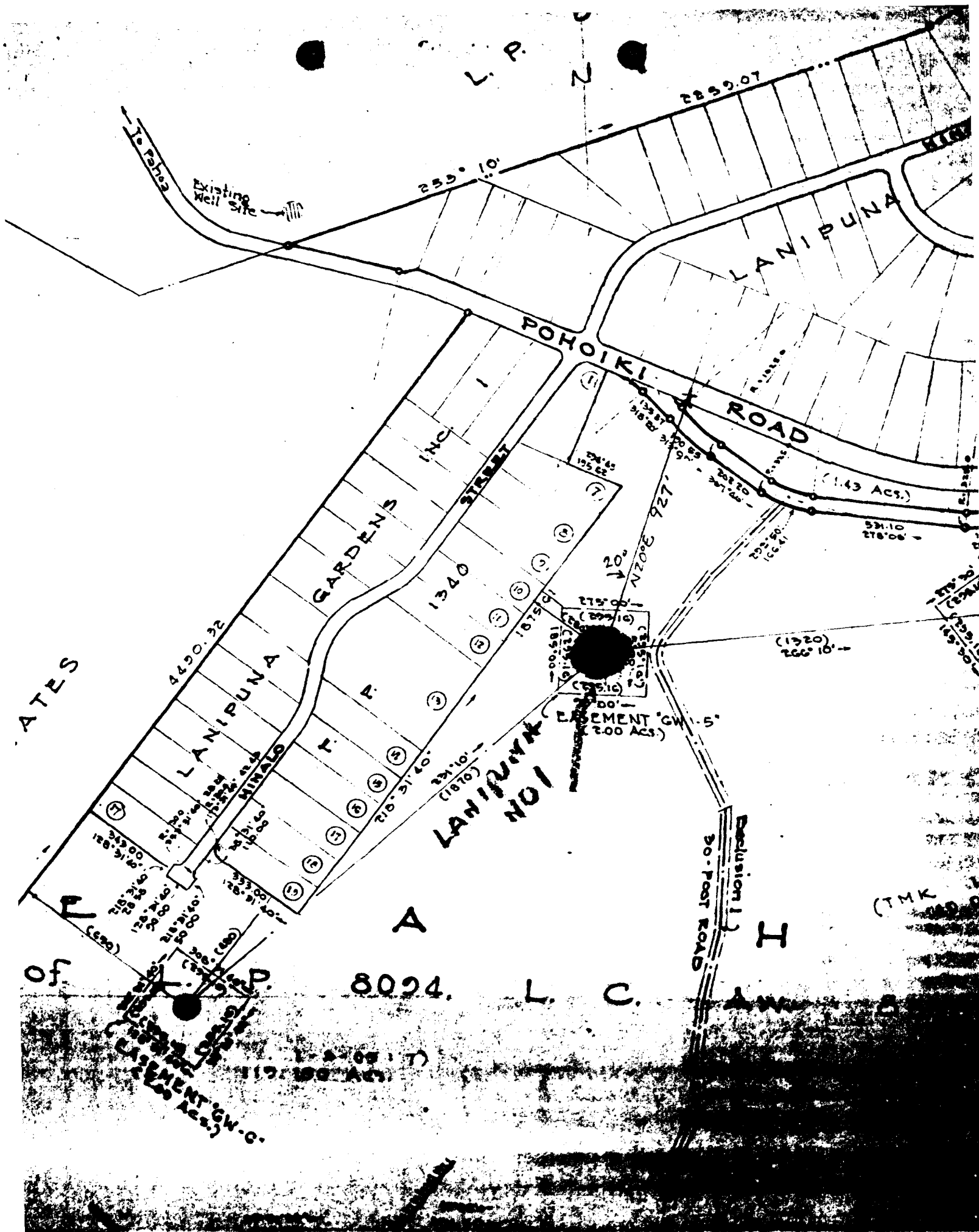
Lanipuna No. 1  
Re-Drilling Permit

-3-

the occupier's or his Tenant's use of the lands. Subject to the foregoing, the applicant may bleed substances to the atmosphere so long as such operations are lawfully and prudently conducted in accordance with good geothermal drilling and production practices and are not otherwise in violation of the law.

  
SUSUMU ONO, Chairman of the Board

9/20/82  
Date of Permit





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

*extra*  
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

GEOHERMAL WELL RE-DRILLING PERMIT

Lanipuna No. 1  
Keahialaka, Puna, Hawaii

TO: Barnwell Geothermal Corp.  
c/o 2828 Paa Street  
Honolulu, Hawaii 96819

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- Beginning at a depth of 3570 ft., drill 8-3/4-inch hole in the direction of North 20° East at a deviation rate of 3° per 100 feet from vertical; final vertical depth of 6500 ft. and horizontal offset from vertical of 927 ft.
- Test the Well

You are hereby granted permission to re-drill and test Lanipuna No. 1 as outlined above and described in your application, all in accordance with the Department's Regulations, Chapter 183 of Title 13, Administrative Rules, and the following conditions:

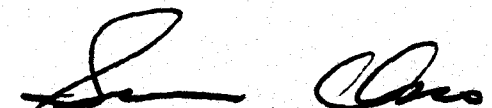


- (1) The applicant shall make a wireline down-hole directional survey of the well from the surface to total depth during or after completion of the re-drilling work to confirm satisfactorily the "as-built" directional hole. The detailed records of the directional survey shall be submitted to the Department within 60 days after the 7-inch liner has been cleaned out.
- (2) This permit is only for re-drilling and testing the well and does not imply or confer any approval or rights to use the well for geothermal production.
- (3) Issuance of this permit does not constitute a waiver of any State claim to the geothermal rights.
- (4) This permit shall expire 365 days from the date of this permit.
- (5) The applicant shall comply with all valid requirements of all municipal, state and federal authorities and observe all municipal, state and federal laws and regulations pertaining to the lands and permittee's operations, which are now in force or which may hereafter be in force, including, but not limited to, all water and air pollution control laws, and those relating to the environment. The State of Hawaii, acting in its governmental capacity, may by regulation regulate the drilling, location, spacing, testing, completion, production, operation, maintenance and abandonment of a well or wells or similar activity as well as the construction, operation and maintenance of any other facilities in the exercise of its police powers to protect the public health, welfare and safety as provided in the regulations.
- (6) Pollution of the ocean and tidelands, rivers, or other bodies of water, and all impairment of and interference with bathing, fishing, or navigation in the waters of the ocean or any bay or inlet thereof is prohibited, and no brine, minerals, or any refuse of any kind from any well or works shall be permitted to be deposited on or pass into waters of the ocean, any bay or inlet thereof, rivers, lakes or other bodies of water, without specific written State authorization.
- (7) No substances which may be produced from any well drilled upon the lands shall be blown, flowed, or allowed to escape into the open air or on the ground in such a manner as to create a nuisance, which shall specifically include but not be limited to noise, air or other pollution, and other activities which disturb

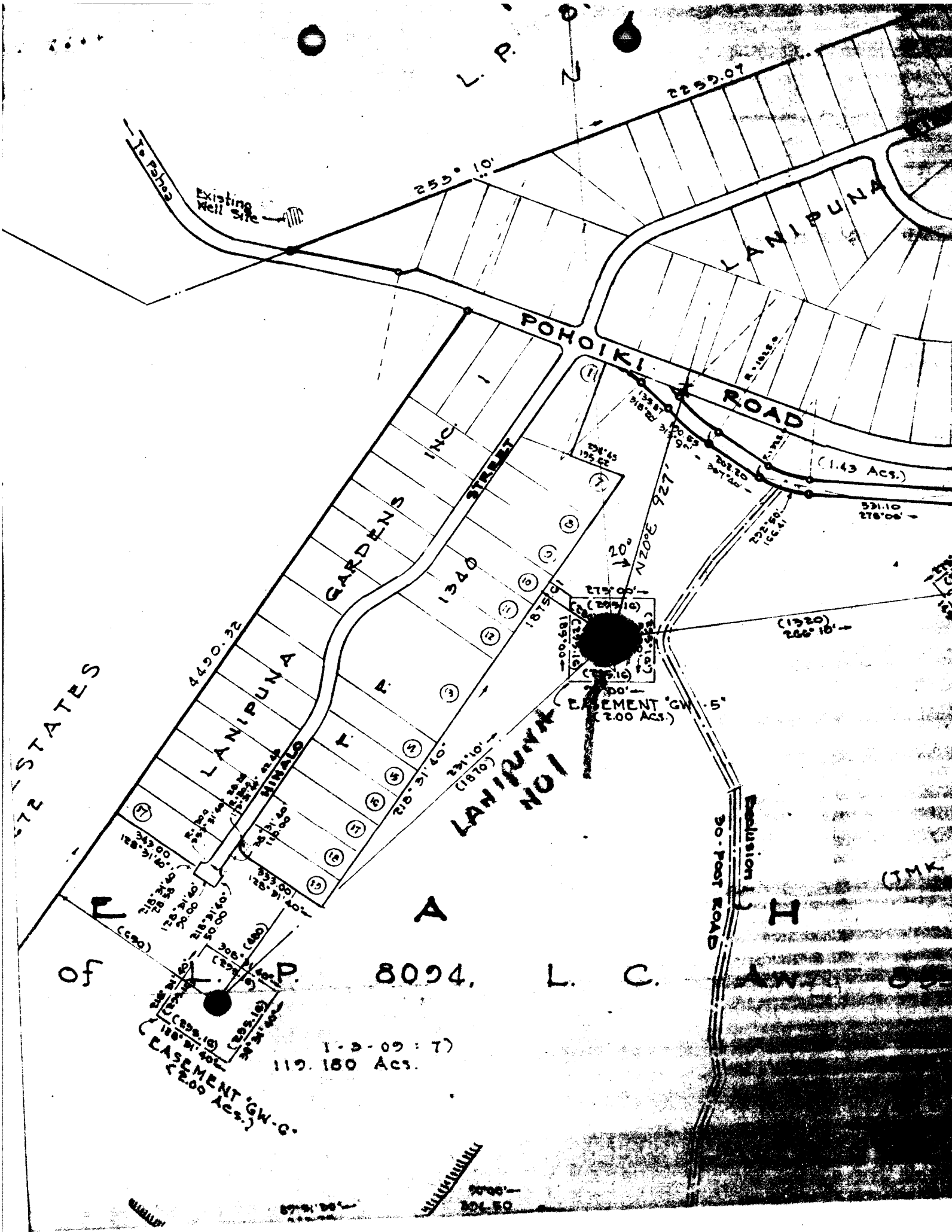
Lanipuna No. 1  
Re-Drilling Permit

-3-

the occupier's or his Tenant's use of the lands. Subject to the foregoing, the applicant may bleed substances to the atmosphere so long as such operations are lawfully and prudently conducted in accordance with good geothermal drilling and production practices and are not otherwise in violation of the law.

  
SUSUMU ONO, Chairman of the Board

9/20/82  
Date of Permit



Jimmy  
Rogers  
Bob C.

Please verify two  
statements being made  
by Bill Tam on attached  
sheet.



DEPARTMENT OF LAND  
AND NATURAL RESOURCES

NOTICE OF MESSAGE RECEIVED

DATE 9/13 TIME 11:30 A.M.  
P.M.  
FOR Mr. Ono  
FROM Bill Tam  
(MR.) (MRS.) (MISS) (MS.)  
OF \_\_\_\_\_  
PHONE 8931 EXT. \_\_\_\_\_

☐ TELEPHONED  
☐ CAME TO SEE YOU  
☐ RETURNED YOUR CALL  
☐ LEFT THE FOLLOWING  
MESSAGE:

☒ PLEASE CALL  
☐ WILL CALL A  
☐ WANTS TO SE  
☐ URGENT - CA

re Puna Speaker law

HGP-A well, 1425 Em

He's saying 2 things - Are the  
True to your knowledge:

- ① There is no violation of any @  
State or Fed. laws
- ② We have not received any!

TAKEN BY: \_\_\_\_\_

formal complaint of  
the violation of any  
County, State or Federal  
law.

9/16/82

SUS:

With regard to question No. 1 (There is no violation of any County, State or Fed. laws), DOWALD has researched this matter and found that there are no H'S emissions regulations for County, State or Federal government.

With regard to question No. 2 (We have not received any formal complaints of the violation of any County, State or Federal law), DOWALD is unaware of any formal complaint.

Bob C.

50 9/17

**ROUTE SLIP**  
**DESIGN & CONSTRUCTION BRANCH**  
**Division of Water and Land Development**

FROM Geo DATE 9/15/80 FILE IN \_\_\_\_\_

<u>TO:</u>	<u>INITIAL:</u>	<u>PLEASE:</u>
<u>✓</u>	<u>✓</u> T. FUJII	<u>See Me</u>
		<u>Take Action</u>
	G. MORIMOTO	<u>Review &amp; Comment</u>
	G. MIYASHIRO	<u>Investigate &amp; Report</u>
	C. INATSUKA	<u>Draft Reply</u>
		<u>Acknowledge Receipt</u>
		<u>Type Draft</u>
	H. MORIMATSU	<u>Type Final</u>
	S. MIYAMOTO	<u>Xerox</u>
	G. MIYAMOTO	<u>Mail</u>
	Y. SHIROMA	
	J. KASAMOTO	
	Y. SHIBUYA	
	L. NANBU	
		<u>FOR YOUR:</u>
<u>✓</u>	R. T. CHUCK	<u>Approval</u>
	J. YOSHIMOTO	<u>Signature</u>
	M. TAGOMORI	<u>Information</u>
<u>✓</u>	J. SAKAI	

**REMARKS:**

Talked to Geo Fujimoto 6411 of Health Dept. regarding regulations on Hrs Emissions.  
 State: no regulations but working on one.  
 County: He doesn't know of any  
 Federal: Could fall under PSD, Prevention of Significant Deterioration  
 40 CFR Part 51 administered by  
 E.P.A. phone # 546-8910  
 9/15 talked to Vicki Red has no Hrs emissions standard

Jimmy  
Rogers  
Bob C.

Please verify two  
statements being made  
by Bill Tam on attached  
sheet.

just



DEPARTMENT OF LAND  
AND NATURAL RESOURCES

NOTICE OF MESSAGE RECEIVED  
\*\*\*\*\*

DATE 9/13 TIME 11:30 A.M. P.M.  
FOR Mr. Ohs  
FROM Bill Tam  
(MR.) (MRS.) (MISS) (MS.)  
OF \_\_\_\_\_  
PHONE 8931 EXT. \_\_\_\_\_

☐ TELEPHONED ☒ PLEASE CALL  
☐ CAME TO SEE YOU ☐ WILL CALL AGAIN  
☐ RETURNED YOUR CALL ☐ WANTS TO SEE YOU  
☐ LEFT THE FOLLOWING MESSAGE: ☐ URGENT - CALL AT ONCE

re Puna Spreader lawsuit

HGP-A well, H<sup>2</sup>S Emissions,

He's saying 2 things - Are they  
True to your knowledge:

- ① There is no violation of any County,  
State or Fed. laws
- ② We have not received any (over)

TAKEN BY: \_\_\_\_\_

Ma  
pls. research  
this  
D

let me know  
P.

Ma,  
I checked our files &  
could find no  
correspondence re complaint.  
2

County, State or Federal  
law.

~~CONFORMANCE WITH LAWS~~  
~~The applicant~~

shall comply with all valid requirements

5.  
6  
state and federal authorities and observe  
~~the~~ state and federal laws and the ocean and tide-  
lands, rivers, or other bodies of water, and all impairment  
of and interference with bathing, fishing, or navigation in  
the waters of the ocean or any bay or inlet thereof is pro-  
hibited, and no brine, minerals, or any refuse of any kind  
from any well or works shall be permitted to be deposited on  
or pass into waters of the ocean, any bay or inlet thereof,  
rivers, lakes or other bodies of water, without specific  
written State authorization.

7.  
No ~~leased~~ Substances which may be produced from  
any well drilled upon the ~~leased~~ lands shall be blown, flowed,  
or allowed to escape into the open air or on the ground in  
such a manner as to create a nuisance, which shall specifically  
include but not be limited to noise, air or other pollution,  
and other activities which disturb the occupier's or his  
Tenant's use of the ~~leased~~ lands. Subject to the foregoing,  
~~the applicant~~ may bleed ~~leased~~ Substances to the atmosphere so long  
as such operations are lawfully and prudently conducted in  
accordance with good geothermal drilling and production  
practices and are not otherwise ~~in violation of the law.~~  
~~of the lease.~~

Lanipuna No. 1  
Re-Drilling Permit

-2-

- (1) The applicant shall make a wireline down-hole directional survey of the well from the surface to total depth during or after completion of the re-drilling work to confirm satisfactorily the "as-built" directional hole. The detailed records of the directional survey shall be submitted to the Department within 60 days after the 7-inch liner has been cleaned out.
- (2) This permit is only for re-drilling and testing the well and does not imply or confer any approval or rights to use the well for geothermal production.
- (3) Issuance of this permit does not constitute a waiver of any State claim to the geothermal rights.
- (4) This permit shall expire 365 days from the date of this permit.

SUSUMU ONO, Chairman of the Board

Date of Permit



Lanipuna No. 1  
Re-Drilling Permit

-2-

- (1) The applicant shall make a wireline down-hole directional survey of the well from the surface to total depth during or after completion of the re-drilling work to confirm satisfactorily the "as-built" directional hole. The detailed records of the directional survey shall be submitted to the Department within 60 days after the 7-inch liner has been cleaned out.
- (2) This permit is only for re-drilling and testing the well and does not imply or confer any approval or rights to use the well for geothermal production.
- (3) Issuance of this permit does not constitute a waiver of any State claim to the geothermal rights.
- (4) This permit shall expire 365 days from the date of this permit.

SUSUMU ONO, Chairman of the Board

Date of Permit

8

## BARNWELL GEOTHERMAL CORPORATION

August 18, 1982

Mr. Susumo Ono, Chairman  
State of Hawaii  
Department of Land and Natural Resources  
P. O. Box 621  
Honolulu, Hawaii 96809

APPLICATION OF GEOTHERMAL DRILLING PERMIT  
Lanipuna Well No. 1  
Keahialaka, Puna, Hawaii

Well Designation: Lanipuna No. 1  
Site Designation: Easement "GW-5" - 2 acres  
Location: TMK: 1-3-9:7, Keahialaka, Puna, Hawaii  
Operator: Barnwell Geothermal Corporation  
Drilling Contractor: Water Resources International, Inc.  
Ground Elevation: +600 feet  
Total Depth: 7000 feet approximately

## Attached hereto:

1. Directional Drilling plan and drawing. (Work scheduled to commence late August, 1982 subject to obtaining drilling permit).
2. Geothermal Resources Well Indemnity Bond in the amount of \$50,000.00.
3. Executed copy of Designation of Agent.

This well was previously permitted for drilling on 4 March 1982, and drilling was performed under that permit. Results, however, were inconclusive and after considerable evaluation and study it was decided that additional work was needed to improve the geothermal characteristics. This plan was not concluded until July, 1982. This did not leave sufficient time for doing the additional work under the allowable 180 days extension which would have expired 4 September 1982.

Bob:  
What effect, if any,  
will permit have on  
suit that has been  
filed?  
How can we assume  
that applicant will  
adhere to control measures  
regarding noise, H<sub>2</sub>S, etc?  
[signature]

Sus,

In answer to your specific questions on the geothermal  
well drilling permit:

- The suit is based upon past government and private actions dealing with the development of geothermal resources. We feel that since we are proceeding in accordance with established laws and the pursuit of State goals in energy self-sufficiency, applications for new permits should be processed regardless of the present suit, subject of course to any court order.

- DOWALD is working with DOH personnel in establishing noise and odor standards. Once DOH establishes these health-related standards, we will be able to apply these standards upon the drillers by including special conditions in the drilling permits.

Bob E 9/13/82

50 9/13

## GEOHERMAL WELL RE-DRILLING PERMIT

Lanipuna No. 1  
Keahialaka, Puna, Hawaii

TO: Barnwell Geothermal Corp.  
c/o 2828 Paa Street  
Honolulu, Hawaii 96819

Your application for a permit to re-drill existing Lanipuna No. 1 Well, described below, has been approved.

Well Designation: Lanipuna No. 1  
Site Designation: Easement "GW-5" (2 acs.)  
Location: TMK 1-3-9:7, Keahialaka, Puna, Hawaii  
19°28'16" Lat., 154°53'33" Long.  
Operator: Barnwell Geothermal Corp.  
Drilling Contractor: Water Resources International  
Ground Elevation: 600+ ft.  
Casing: 20-inch Dia., surface to 68 ft., cemented  
13-3/8-inch Dia., surface to 1018 ft., cemented  
9-5/8-inch Dia., surface to 3502 ft., cemented  
7-inch Dia., slotted liner, 3337 to 7872 ft.  
Existing Bottom of Hole: 7771 ft.

### Proposed Re-drilling Work

- o Remove portion of 7-inch liner.
- o Beginning at a depth of 3570 ft., drill 8-3/4-inch hole in the direction of North 20° East at a deviation rate of 3° per 100 feet from vertical; final vertical depth of 6500 ft. and horizontal offset from vertical of 927 ft.
- o Test the Well

You are hereby granted permission to re-drill and test Lanipuna No. 1 as outlined above and described in your application, all in accordance with the Department's Regulations, Chapter 183 of Title 13, Administrative Rules, and the following conditions:

*noted 9/11/13  
50 9/13  
pm, 8/31*

Lanipuna No. 1  
Re-Drilling Permit

-2-

- (1) The applicant shall make a wireline down-hole directional survey of the well from the surface to total depth during or after completion of the re-drilling work to confirm satisfactorily the "as-built" directional hole. The detailed records of the directional survey shall be submitted to the Department within 60 days after the 7-inch liner has been cleaned out.
- (2) This permit is only for re-drilling and testing the well and does not imply or confer any approval or rights to use the well for geothermal production.
- (3) Issuance of this permit does not constitute a waiver of any State claim to the geothermal rights.
- (4) This permit shall expire 365 days from the date of this permit.

SUSUMU ONO, Chairman of the Board

Date of Permit

STATE OF HAWAII )  
CITY & COUNTY OF HONOLULU ) SS:  
 )

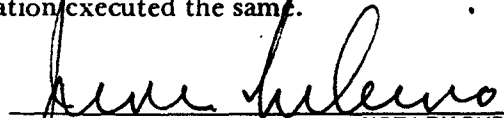
*Diane M. Tamara* CS  
 Notary Public, 1st Judicial Circuit  
 State of Hawaii  
 My Commission Expires: 10-9-84

State of Hawaii  
City &  
County of Honolulu

} ss. On August 16, 1982, before me, the undersigned,  
a Notary Public of said county and state, personally appeared

John T. Lettieri,  
known to me to be the Attorney-in-Fact of

INDUSTRIAL INDEMNITY COMPANY,  
the Corporation that executed the within instrument, and known  
to me to be the person who executed the said instrument on  
behalf of the Corporation therein named, and acknowledged to  
me that such Corporation executed the same.

  
\_\_\_\_\_  
NOTARY PUBLIC  
Notary Public, State of Hawaii

My Commission Expires

11-16-84

GEOHERMAL RESOURCES WELL INDEMNITY BOND  
(\$50,000 Individual Well Bond)

KNOW ALL MEN BY THESE PRESENTS:

That we BARNWELL GEOTHERMAL CORPORATION

as principal; and INDUSTRIAL INDEMNITY COMPANY

organized and existing under and by virtue of the laws of the STATE OF HAWAII and authorized to transact surety business in the STATE OF HAWAII, as surety, are held and firmly bound unto the State of Hawaii in the full and just sum of FIFTY THOUSAND AND NO/100 DOLLARS (\$50,000.00) lawful money of the United States of America, to be paid to the said State of Hawaii, for which payment, well and truly to be made, we do hereby bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed, delivered and dated this 16th day of August, 1982, at Honolulu, City and County of Honolulu, State of Hawaii.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT,

WHEREAS, said principal is about to acquire, drill, redrill, deepen, operate, maintain or abandon a geothermal resources well designated as Well No. Lanipuna #1 TMK: 1-3-9:7, Latitude \_\_\_\_\_, Longitude \_\_\_\_\_, Island of Hawaii and is required to file this bond in connection therewith in accordance with Rule 9.4 of Regulation 8 of the Department of Land and Natural Resources, State of Hawaii.

NOW, THEREFORE, if said BARNWELL GEOTHERMAL CORPORATION, the above bounden principal, shall well and truly comply with all the provisions of said Regulation 8 and shall obey all lawful orders of the Chairman of the Board of Land and Natural Resources, or his representative, if not appealed to the Board of Land and Natural Resources, or upon affirmance thereof by the Board of Land and Natural Resources, if appealed thereto, and shall pay all charges, costs, and expenses incurred by the Chairman or his representative, in respect of such well or the property or properties of said principal, or assessed against such well or the property or properties of such principal, in pursuance of the provisions of said Regulation 8, then this obligation shall be void; otherwise, it shall remain in full force and effect.

BARNWELL GEOTHERMAL CORPORATION  
Principal

By: E. C. Craddick  
Its: President

Approved as to form:

Deputy Attorney General

Dated: \_\_\_\_\_

INDUSTRIAL INDEMNITY COMPANY  
Surety

By: John T. Lettieri  
Its: Attorney-in-fact, John T. Lettieri



# Power of Attorney

#1156

INDUSTRIAL  
INDEMNITY

HOME OFFICE - SAN FRANCISCO

Know all men by these presents:

That INDUSTRIAL INDEMNITY COMPANY, a corporation organized and existing under the laws of the State of California, and having its principal office in the City of San Francisco, State of California, does hereby make, constitute and appoint

JOHN T. LETTIERI

its true and lawful attorney-in-fact for it and in its name, place and stead to execute on its behalf as surety, bonds, undertakings, stipulations, consents and all contracts of suretyship and to attach its corporate seal to such obligations in favor of all obligees, provided that the liability of the Company as surety under his authority in no one instance shall exceed the sum of

UNLIMITED

and reserving to itself full power of substitution and revocation.

This Power of Attorney is made and executed in accordance with the Resolution adopted by the Board of Directors of INDUSTRIAL INDEMNITY COMPANY at a meeting held on the 27th day of September, 1972, reading as follows:

"RESOLVED, that the Chairman of the Board or President or Executive Vice President or Senior Vice President of the Company, in conjunction with the Secretary or an Assistant Secretary of this Company, be and he hereby is authorized to execute, acknowledge or verify Powers of Attorney qualifying selected attorneys-in-fact to act under such Powers of Attorney to execute on behalf of Industrial Indemnity Company bonds, undertakings, stipulations, consents and all contracts of suretyship, and to attach the corporate seal thereto;

"RESOLVED, FURTHER, that the signatures of said officers so authorized by this Company may be printed facsimile, lithographed or otherwise produced, and that the facsimile signature of any person who shall have been such officer of this Company at the time of such execution, acknowledgment or verification may continue to be used for the purpose hereinabove stated and will be binding on this Company, notwithstanding the fact that he may have ceased to be such officer at the time when such instruments shall be issued."

In witness whereof, INDUSTRIAL INDEMNITY COMPANY has caused these presents to be signed and its corporate seal to be affixed by its proper officers, at the City of San Francisco, California, this 18th day of February, 1982.

Attest:



L. E. Mulryan,  
Secretary

INDUSTRIAL INDEMNITY COMPANY

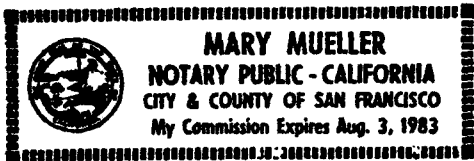
By J. G. LaPlante,  
Senior Vice President

STATE OF CALIFORNIA }  
CITY AND COUNTY OF SAN FRANCISCO } ss.

On this 18th day of February, 1982, before me, Mary Mueller,  
a notary public in and for the City and County of San Francisco, State of California, personally appeared  
J. G. LaPlante and L. E. Mulryan

known to me to be the Senior Vice President and Secretary of the corporation which executed the within instrument, and acknowledged to me that such corporation executed the same, and that the resolution referred to in the preceding instrument is a true and correct copy of the resolution duly passed at a meeting of the Board of Directors on September 27, 1972, and that the same is in full force and effect.

In witness whereof, I have hereto set my hand and affixed my official seal the day and year in this certificate first above written.



Mary Mueller  
Notary Public in and for the City and County  
of San Francisco, State of California

I, L. E. Mulryan, Secretary of INDUSTRIAL INDEMNITY COMPANY, do hereby certify that I have compared the Power of Attorney granted herein and the Resolution recited herein with the originals now on file in the principal office of said Company, and that the same are correct transcripts therefrom and of the whole of the said originals, and that said Power of Attorney has not been revoked but is still in full force and effect.

In witness whereof, I have hereunto subscribed my name as such officer and affixed the seal of INDUSTRIAL INDEMNITY COMPANY at the City of San Francisco, California, this 16th day of August, 1982.

SEAL

L. E. Mulryan,  
Secretary

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES

DESIGNATION OF AGENT

In compliance with Rule 8.2 of Regulation 8 of the Department of Land and Natural Resources, notice is hereby given and I hereby certify that I  
(I, we) (I, we)

E. C. Craddick

Name(s)

representing BARNWELL GEOTHERMAL CORPORATION (OWNER-OPERATOR)  
(firm or corporation)

of Honolulu, State of Hawaii, have appointed, authorized and  
(City)

empowered BARNWELL GEOTHERMAL CORPORATION  
(name of designee)

whose address is 2828 Paa St., Suite 2085, Hon., Hi 96819, State of Hawaii,  
as our agent in the State of Hawaii\*  
(my, our)

who shall be the repository for all well records for each geothermal well drilled by  
us, and upon whom all orders, notices and processes under the provisions of  
(me, us)

said Regulation 8 may be served.

This notice supersedes all previous designations made for the above-described purposes.

IN WITNESS WHEREOF I have signed this certificate this 18th day of  
(I, we)  
August, 19 82

Witness:

Sandra A. Meyer

E. C. Craddick, President  
Name and Title

Name and Title

Agent's acceptance:

E. C. Craddick

NOTE: An owner or operator may appoint himself as agent.

\*Should the owner or operator filing this form choose to appoint more than one agent, the phrase, "State of Hawaii" should be deleted and the exact area for which the agent is to be appointed should be inserted. A separate form must be filed for each agent.

Rule 8.2. Designation of Agent. Any person who has drilled, is drilling, or proposes to drill any geothermal well shall designate on forms provided by the Department an agent who shall be a resident of the State of Hawaii and upon whom may be served all orders, notices, and processes of the Department or any court of law. Every person so appointing an agent shall, within five days after the termination of any such agency, notify the Chairman in writing of such termination, and unless operations are discontinued, shall appoint a new agent. All changes in the address of an agent must be recorded with the Chairman within five days of the change of the address.

4808

# BARNWELL GEOTHERMAL CORPORATION

82 AUG 18 P 4: 27

27

August 18, 1982

 GEO. & WATER RESOURCES  
 STATE OF HAWAII

 GEO. & WATER RESOURCES  
 STATE OF HAWAII

Mr. Susumo Ono, Chairman  
 State of Hawaii  
 Department of Land and Natural Resources  
 P. O. Box 621  
 Honolulu, Hawaii 96809

APPLICATION OF GEOTHERMAL DRILLING PERMIT  
 Lanipuna Well No. 1  
 Keahialaka, Puna, Hawaii

 GEO. & WATER RESOURCES  
 STATE OF HAWAII

AUG 24 1982

RECEIVED

Well Designation: Lanipuna No. 1  
 Site Designation: Easement "GW-5" - 2 acres  
 Location: TMK: 1-3-9:7, Keahialaka, Puna, Hawaii  
 Operator: Barnwell Geothermal Corporation  
 Drilling Contractor: Water Resources International, Inc.  
 Ground Elevation: +600 feet  
 Total Depth: 7000 feet approximately

Attached hereto:

1. Directional Drilling plan and drawing. (Work scheduled to commence late August, 1982 subject to obtaining drilling permit).
2. Geothermal Resources Well Indemnity Bond in the amount of \$50,000.00.
3. Executed copy of Designation of Agent.

This well was previously permitted for drilling on 4 March 1982, and drilling was performed under that permit. Results, however, were inconclusive and after considerable evaluation and study it was decided that additional work was needed to improve the geothermal characteristics. This plan was not concluded until July, 1982. This did not leave sufficient time for doing the additional work under the allowable 180 days extension which would have expired 4 September 1982.

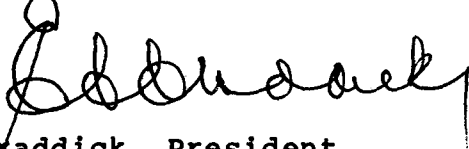
State of Hawaii  
Department of Land and Natural Resources  
August 18, 1982  
Page Two

We, therefore, wish to submit this as a re-application for additional work under a new permit for one (1) year.

Our rig and crew will be idle until we receive the necessary permit, and therefore, we respectfully request your kind cooperation by giving this your prompt attention so that we may proceed with this job at the earliest possible date.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick, President

ECC/sm

Enclosures: Directional Drilling Plan and Drawing  
Geothermal Resources Well Indemnity Bond  
Designation of Agent

cc: Mr. M. H. Kinzler - New York  
Mr. M. Gardner - California  
Mr. S. Eisenstat - New York  
Mr. Bill Craddick - Hilo

## LANIPUNA WELL #1 - DIRECTIONAL DRILLING PROPOSAL

### Present Well Status:

1. 20 inch casing set at 68 feet and cemented to surface
2. 13-3/8 inch casing set at 1018 feet and cemented to surface
3. 9-5/8 inch casing set at 3502 feet and cemented to surface
4. Uncemented 7 inch liner from 3337 feet to 7872 feet (slotted interval from 5350 feet to 7872 feet).

### General Scope of Additional Planned Work

1. Mobilize drilling rig on existing well site
2. Nipple up B.O.P.E. and test same
3. Recover free portion of 7 inch liner
4. Side track hole below 9-5/8 inch casing and directional drill to 6500 feet
5. Run 7 inch slotted liner, and hang off bottom in 9-5/8 inch casing
6. Cement top of 7 inch liner
7. Clean out 7 inch liner to bottom and displace mud with water
8. Test well.

### Mobilization Activities

1. Mobilize WRI drilling rig #4 on existing well site
2. Mobilize cement pumping and bulk unit
3. Mobilize electric logging unit.

### Directional Drilling Program

#### PHASE I

1. Nipple up B.O.P.E. and pressure test same
2. Pick up 4000 feet of 4 inch drill pipe and stand back in derrick
3. Trip with 7 inch casing spear to determine cut off point - stretch method
4. Cut off free portion of 7 inch liner and recover same.

#### PHASE II

1. Set cement plug and polish off to kick off point 3570 feet.
2. Mud up by-passing all cemented contaminated fluids to reserve pit
3. Sidetrack hole at 3570 feet (north direction) and build drift angle (3 degrees per 100 feet) to a maximum angle of 21 degrees - 8-3/4 inch hole
4. Directionally drill 8-3/4 inch hole, maintaining 21 degrees drift angle in north direction, to 6500 feet (measured depth) with 927 feet deviation from vertical, and terminating approximately North 20 degrees East.

PHASE III

1. Run slotted liner (7 inch) and hang off bottom in 9-5/8 inch casing with 200 feet liner lap
2. Cement through port collar, positioned in casing string at 4400 feet, to top of liner
3. Pressure test liner lap - squeeze with cement if necessary
4. Clean out 7 inch liner to bottom and displace mud with water
5. Test well.

WRI-8/09/82

Lani'1

August 6, 1982

MEMORANDUM FOR THE RECORD

FROM: Neal Imada

SUBJECT: Geothermal Well Location

The following latitude and longitude location were given to Petroleum Information Service per their request. The locations were obtained from approximate plottings on the USGS quad made during a field inspection of geothermal wells on March 17, 18, 1982.

Lanipuna #1	Lat.	19°	28'	16"	Long.	154°	53'	33"
" #2	"	19°	28'	6"	"	154°	53'	47"
" #3	"	19°	28'	19"	"	154°	53'	25"
Daichi	"	19°	28'	48"	"	154°	52'	42"

Well Lanipuna #1 is the only well that has been drilled to date. The other locations are site selections only and may be subject to change.

*Neal*

NEAL IMADA

NI:ko

July 12, 1982

Mr. E.C. Craddick, President  
Water Resources International, Inc.  
2828 Paa Street, Suite 2085  
Honolulu, Hawaii 96819

Dear Mr. Craddick:

This is to acknowledge receipt of the as-built drawing of Lanipuna Well No. 1.

Your letter indicated that there has been no drilling to date at the Lanipuna No. 2 site. Our records, from field visits, indicate that there was some drilling activity at the Lanipuna No. 2 site. We would like to know the extent of the drilling activities at the Lanipuna No. 2 site for our records and files.

Thank you for your cooperation in these matters.

Very truly yours,



ROBERT T. CHUCK  
Manager-Chief Engineer

ES:ko





**WATER RESOURCES INTERNATIONAL, INC.**

2828 PAA STREET, SUITE 2085 • HONOLULU, HAWAII 96819  
TELEPHONE (808) 839-7727 • TELECOPIER (808) 833-5577 • TELEX 7238672

July 1, 1982  
J-1004

State of Hawaii  
Department of Land and Natural Resources  
Division of Water and Land Development  
P. O. Box 373  
Honolulu, Hawaii 96809

Attention: Mr. Robert T. Chuck  
Manager-Chief Engineer

Subject: Activity at Lanipuna No. 1 Drilling Site

Dear Mr. Chuck:

Please find enclosed the as-built drawing, for the Lanipuna Well No. 1, which you requested.

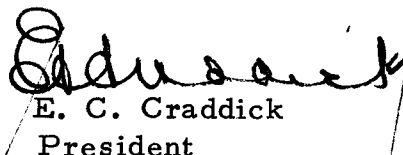
We expect to resume work on this well in August and will inform you of details when plans have been prepared prior to work commencement. The drilling rig has been removed from the Thermal Power site and has been relocated at our Lanipuna No. 1 well site.

No drilling will occur until the necessary extension requirements have been met.

There has been no drilling to date on Lanipuna No. 2, Lanipuna No. 3 or Daiichi No. 1, and we cannot say at this time which of these will follow Lanipuna No. 1.

Very truly yours,

WATER RESOURCES INTERNATIONAL, INC.

  
E. C. Craddick  
President

ECC/glm

Encl: Drawing

cc: Bill Craddick  
Andy Blumenthal, New York Office

June 3, 1982

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

Dear Mr. Craddick:

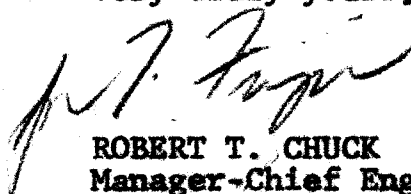
Activity at Lanipuna No. 1 Drilling Site

My staff has recently observed drilling-related activity at the Lanipuna No. 1 geothermal well site.

In our letter to you, dated April 5, 1982 (attached), we requested several items of information before considering extension of your drilling permits. We have not yet received any of the information. Please send us the information and advise us of your plans.

If you have any questions, please contact Manabu Tagomori at 548-7619.

Very truly yours,



ROBERT T. CHUCK  
Manager-Chief Engineer

ES:ko  
Encl.

April 5, 1982

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

Dear Mr. Craddick:

Renewal of geothermal well permits for  
Lanipuna No. 1, 2, and 3, and Daiichi No. 1

This is to acknowledge receipt of your request to extend the drilling permits for the above geothermal wells.

Consideration for approval of your request will be given upon receipt, in writing, of the following:

Lanipuna No. 1 - Status and as-built drawing of Well to date, results of any testing conducted to date; your plan of operation for any further drilling activities; four weeks notice prior to any drilling activities.

Lanipuna No. 2 - Status and as-built drawing of the drilled well to date; your plan of operation for any further drilling activities; four weeks notice prior to any drilling activities.

Lanipuna No. 3 and Daiichi No. 1 - Four weeks notice prior to any drilling activities and notice of any proposed changes in location from the selected sites shown to DOWALD personnel on March 17, 1982.

DLNR regulations allow for renewal of drilling permits for an additional 180 days at the discretion of the chairperson. Upon receipt of the above-requested information, extension of the drilling permits will be considered on a well-by-well basis.

If you have any questions please contact Manabu Tagomori at 5487619.

Very truly yours,

  
ROBERT T. CHUCK  
Manager-Chief Engineer

ES:ey

April 5, 1982

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

Dear Mr. Craddick:

Renewal of geothermal well permits for  
Lanipuna No. 1, 2, and 3, and Daiichi No. 1

This is to acknowledge receipt of your request to extend the drilling permits for the above geothermal wells.

Consideration for approval of your request will be given upon receipt, in writing, of the following:

Lanipuna No. 1 - Status and as-built drawing of Well to date, results of any testing conducted to date; your plan of operation for any further drilling activities; four weeks notice prior to any drilling activities.

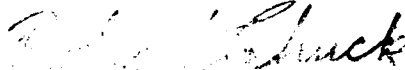
Lanipuna No. 2 - Status and as-built drawing of the drilled well to date; your plan of operation for any further drilling activities; four weeks notice prior to any drilling activities.

Lanipuna No. 3 and Daiichi No. 1 - Four weeks notice prior to any drilling activities and notice of any proposed changes in location from the selected sites shown to DOWALD personnel on March 17, 1982.

DLNR regulations allow for renewal of drilling permits for an additional 180 days at the discretion of the chairperson. Upon receipt of the above-requested information, extension of the drilling permits will be considered on a well-by-well basis.

If you have any questions please contact Manabu Tagomori at 5487619.

Very truly yours,



ROBERT T. CHUCK  
Manager-Chief Engineer

ES:ey

1571

W

# BARNWELL GEOTHERMAL CORPORATION

82 MAR 23 A10:22  
March 22, 1982

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

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

Attention: Robert T. Chuck

Reference: Lanipuna Geothermal Wells  
No. 1, 2 and 3, and Daiichi No. 1

Gentlemen:

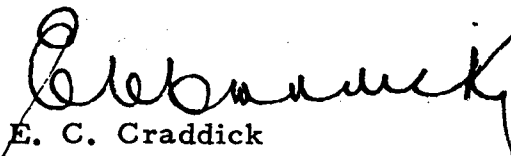
Work on the above wells was delayed due to the necessity of evaluating findings to date on Lanipuna Well No. 1, and meanwhile also undertaking to drill two Geothermal Wells for TPC/Dilco on adjacent property.

Based on results of this drilling, we intend to make a selection of the next drilling site, within the next three months.

It is quite important therefore, that we have flexibility in this site selection and therefore, respectfully request that the above drilling permits be extended for another year.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



E. C. Craddick  
President

ECC/glm

March 17, 1982

Barnwell Geothermal Corp.  
2828 Paa Street  
Honolulu, Hawaii 96819

Gentlemen:

This is to notify you that permits to drill and test geothermal wells, Lanipuna No. 1, Lanipuna No. 2, and Lanipuna No. 3, issued by the Department of Land and Natural Resources in early 1981 have all expired as of March 4, 1982. If you plan to do any work on these wells, applications for new permits are required from the Department.

The review of our files indicates that well completion reports have not been filed to date. We would appreciate receiving any information available as required by the Department's Administrative Rules on "Leasing and Drilling of Geothermal Resources".

If you have any questions regarding the above matter, please contact Robert T. Chuck at 548-7539.

Very truly yours,

/s/SUSUMUONO

SUSUMU ONO  
Chairman of the Board

Route Slip  
**WATER SOURCES & FLOOD CONTROL BRANCH**

From: Ed Date: 1/4/82 File in: \_\_\_\_\_

<u>To</u> <u>Initial</u>	<u>Please</u>
_____ Manabu Tagomori	_____ See me
_____ Albert Ching	_____ Call
_____ Daniel Lum	_____ Take action by _____
_____ George Matsumoto	_____ Review & comment
_____ Nobu Kaneshiro	_____ Draft reply by _____
_____ Tom Nakama	_____ Type draft
_____ Paul Matsuo	_____ Type final
_____ Edwin Sakoda	_____ Xerox _____ copies
_____ Mitchel Ohye	_____ Mail
_____ Milton Yamasaki	<u>For</u> _____ Approval
_____ Joe Menor	_____ Signature
_____ Doris Hamada	_____ <input checked="" type="checkbox"/> Information

_____ Robert Chuck	_____ Jane Sakai	_____ Bill Koyanagi
_____ Takeo Fujii	_____ Elsie Yonamine	_____ Richard Jinnai
_____ James Yoshimoto	_____	_____ Yoshi Shibuya
_____	_____	_____

LANIPUNA WELL 1 (2883- )

LAT: 19° 28' 16"

LONG: 154° 53' 33"

GEORGE R. ARIYOSHI  
GOVERNOR OF HAWAII



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

*file - Lanipuna*  
*No. 1*

DIVISIONS:  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

December 31, 1981

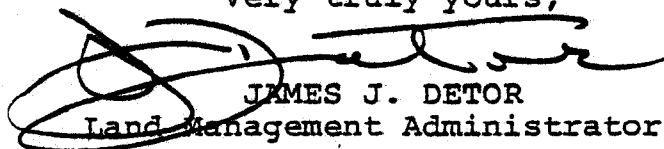
Ms. June Kukino  
Attorney-in-Fact  
Marsh & McLennan, Incorporated  
P. O. Box 38  
Honolulu, HI 96810

Dear Ms. Kukino:

Subject: Barnwell Geothermal Corporation, Bond  
No. 877399 (Lanipuna No. 1) and Geothermal  
Exploration and Development Corporation Bond  
No. 872109 (Opihikao No. 1)

In response to your inquires of December 9, 1981, respecting the subject bonds please be advised that the bonds are continuous and are required to remain in effect until the wells are abandoned. No estimate of an abandonment date has been made.

Very truly yours,

  
JAMES J. DETOR  
Land Management Administrator

cc: Hawaii Board Member  
Hawaii District Land Office



DEPARTMENT OF LAND AND NATURAL RESOURCES

State Office Building  
P. O. Box 621  
Honolulu, Hawaii 96809

Suspense: \_\_\_\_\_

TO:

- ☐ Governor of Hawaii
- ☐ Lt. Governor
- 2. ☒ Chairman
- ☐ Bd. of Land & Natural Resources, Member
- ☐ Attorney General
- ☐ Surveyor
- ☐ Dept. of Transportation
- ☐ City & County of Honolulu
- ☐ County of \_\_\_\_\_
- ☐ Registrar of Land Court
- ☐ Bureau of Conveyances
- ☐ Land Agent of \_\_\_\_\_

1. ☒ Bob Chuck, DOWALD *Bob Cook*

FOR:

- ☐ Return
- ☐ Retention
- ☐ \_\_\_\_\_

1. ☒ Approval

☐ Approval as to Form

2. ☒ Signature

*Approved by the Board  
at its meeting held on*

☐ Comment

☐ Recommendation

☐ Investigation & Report

☐ Appropriate Action

☐ Draft reply for Governor's signature

☐ \_\_\_\_\_

☐ \_\_\_\_\_

REMARKS: Geothermal well drilling permit  
to Barnwell Geo. Corp. and  
transmittal letters to Bd members,  
DWS and Planning Dept

*[Signature]*  
Signature

Dec. 19

19 81

*F-2-12-13-14-15*

GEORGE R. ARIYOSHI  
GOVERNOR OF HAWAII

RECEIVED

81 JAN 21 P 3: 25



DIVISIONS:  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

DIV. OF WATER &  
LAND DEVELOPMENT

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

January 20, 1981

MEMORANDUM

TO: Mr. Robert Chuck

FROM: James J. Detor

SUBJECT: Barnwell Geothermal Corporation Application  
for Well Drilling Permit for Lanipuna I  
(Tax Map Key 1-3-9:07)

In reference to your inquiry of January 15, 1981, the Land Commission Award does not contain an express mineral reservation. However, since the Land Commission Award was issued in 1854, our position is that the State does have an implied reservation and, therefore, does in fact own the mineral rights. Reason for this is that during the period 1845-1859 the law required reservation of the mineral rights so regardless of whether a document issued during this period actually contained a reservation or not, the State nevertheless does own the mineral rights.

  
JAMES J. DETOR

July 24, 1981

MEMORANDUM

TO: Mr. Steve Nishimoto via T. Fujii

FROM: Robert T. Chuck

SUBJECT: Lanipuna #1, Geothermal Well

Attached for your information and use is a copy of Barnwell's well permit and Barnwell's drilling program for Lanipuna Well No. 1 which is a part of their well permit.

We would appreciate your inspection of this geothermal well as time permits and as you deem necessary. Please keep us informed from time to time. If you have any questions concerning the well drilling, call Dan Lum at 548-7643.

*Robert T. Chuck*

ROBERT T. CHUCK

*DL*  
DL:ko  
Encl.

MEMO

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

TO MR. ROBERT T. CHUCK \* MANAGER-CHIEF ENGINEER

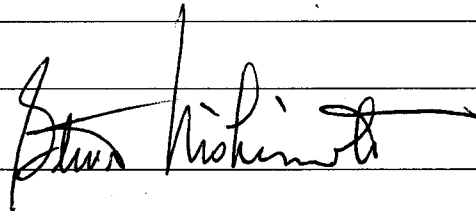
FROM Steve Nishimoto

DATE July 9, 1981

SUBJECT LANIPUNA WELL #1 - Pohoiki, Puna, Hawaii

MESSAGE: The well was "re-drilled" to 7,800 feet and 7 inch casing installed. Temperature survey is being conducted at present. Flashing of the well is scheduled for next week.

SIGNED



MEMO

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

*mt* Davis

TO: Steve Nishimoto

FROM

Robert T. Chuck

DATE

June 23, 1981

SUBJECT

Lanipuna Well #1

MESSAGE:

Thank you for your memo of June 22, 1981 which informed us of the latest status of the subject well. I certainly appreciate being kept up to date on this matter.

ROBERT T. CHUCK

TF:ln

SIGNED

# MEMO

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

TO: MR. ROBERT T. CHUCK, MANAGER-CHIEF ENGINEER

FROM: Steve Nishimoto

DATE: June 22, 1981

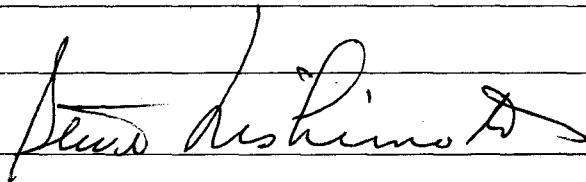
SUBJECT: LANIPUNA WELL #1 Pohoiki, Puna, Hawaii

MESSAGE: The well was flashed the previous weekend. It was observed that the steam discharge was below its potential volume. Mr. Bill Craddick of Water Resources International believes that the walls of the well may have collapsed after about an hour of flashing the well causing the low volume of steam. He plans to re-drill the well at a later date after the casing arrives.

RECEIVED  
DIV. OF WATER &  
LAND DEVELOPMENT

81 JUN 24 4:47

SIGNED



Route Slip *m*  
WATER RESOURCES & FLOOD CONTROL BRANCH

From: *CL* Date: *6/19/81* File in: \_\_\_\_\_

To Initial		Please
<i>[initials]</i>	Manabu Tagomori	See me
<i>[initials]</i>	Albert Ching	Call
<i>[initials]</i>	Daniel Lum	Take action by _____
<i>[initials]</i>	George Matsumoto	Review & comment
<i>[initials]</i>	Nobu Kaneshiro	Draft reply by _____
<i>[initials]</i>	Tom Nakama	Type draft
<i>[initials]</i>	Paul Matsuo	Type final
<i>[initials]</i>	Edwin Sakoda	Xerox _____ copies
<i>[initials]</i>	Mitchel Ohye	Mail
<i>[initials]</i>	Milton Yamasaki	For _____
<i>[initials]</i>	Joe Menor	Approval
<i>[initials]</i>	Doris Hamada	Signature
<i>[initials]</i>		<i>[initials]</i> Information

<i>[initials]</i> Robert Chuck	<i>[initials]</i> Jane Sakai	<i>[initials]</i> Bill Koyanagi
<i>[initials]</i> Takeo Fujii	<i>[initials]</i> Elsie Yonamine	<i>[initials]</i> Richard Jinnai
<i>[initials]</i> James Yoshimoto	<i>[initials]</i>	<i>[initials]</i> Yoshi Shibuya

GEO THERMAL ACTIVITIES (from Steve N.)

LANIPUNA I  
Awaiting casing

THERMAL DILLINGHAM  
Preparing site for drilling (WRI)

identified: Poncha Hot Springs in Chaffee County; the southwestern San Luis Valley area near Monte Vista; the Baca Grande Development near Crestone; and the Alamosa Mushroom Farm, Inc.

A test geothermal production well to prove the on-site resource availability is scheduled to be drilled in summer 1981. Application for a drilling permit has been filed for the 2500-ft well. It will be located in Sec. 26, T38N, R10E.

If the hot-water resource is confirmed as expected, the geothermal industrial park concept, of which the mushroom facility is a part, could play an important developmental role in strengthening the San Luis Valley region's economy. The mushroom facility will employ approximately 200 persons. Other proposed industries for this specific site include a poultry farm and possible greenhousing and aquaculture operation.

**STUDY OF ZINC REPROCESSING WITH GEOTHERMAL GETS UNDER WAY.** The contract award meeting for the Salida, Colorado zinc reprocessing study was held February 20, 1981. The study is being funded under a U.S. Department of Energy Program Research and Development Announcement (PRDA) grant (BULLETIN, Vol. 9, No. 11, December 1980).

Chaffee Geothermal, Ltd. (Denver, CO) is the primary contractor for the study. The firm will focus on the feasibility of utilizing low-temperature geothermal heat for reprocessing waste zinc metal into pelletized zinc sulfate. The product is used as a fertilizer additive and a cattle-feed supplement.

The study will also investigate the feasibility of utilizing low-temperature geothermal heat for other industrial, agricultural, and commercial uses in the Salida area.

## HAWAII

**HAWAIIAN GEOTHERMAL LEASES SIGNED.** Saying that the occasion "will be seen as an important date in the history of modern Hawaii," Governor George Ariyoshi on February 20, 1981 signed two leases for development of geothermal power on the Island of Hawaii. The leases—one with

Bishop Estate and the other with Kapoho Land Partnership—will give the landowners the right to tap geothermal resources for the generation of electricity.

The State of Hawaii treats geothermal energy as a mineral and with only a few exceptions retains mineral rights beneath privately owned property throughout the state. There is currently a further effort in the state legislature to assert state rights over all geothermal power, even when other mineral rights remain in private hands.

One private geothermal well project is under way in Puna on property where the mineral rights are not reserved by the state. The project is a joint venture of Barnwell Geothermal Corporation of Tennessee and GEDCO of Hawaii (BULLETIN, Vol. 10, Nos. 2 & 3, Feb/March and April 1981).

The Bishop Estate and Kapoho Land Partnership leases are the first involving state authority over geothermal power. Approval for the Bishop Estate was given by the state Land Board in May 1977. The lease with Kapoho Land Partnership was approved in December 1980. The two landowners will sublease the mineral rights to a joint venture of Dillingham Corporation of Hawaii and Thermal Power Company of California which will drill the wells and develop the geothermal power (BULLETIN, Vol. 9, No. 9, October 1980). If the wells prove successful and electric power is generated, it will be sold to the Hawaii Electric Light Company.

Under the terms of the 65-year lease, the State of Hawaii will receive ten percent of the revenue generated from the sale of geothermal energy and five percent of the proceeds of the sale of byproducts. Land Board approval includes a stipulation that the power must be sold at or under the going price of electricity generated by imported oil.

Land Board Chairman Susumo Ono says the Board has two goals in mind: lessening Hawaii's dependence on imported energy sources and keeping down the cost of electricity. Those criteria coupled with standards regarding financial stability, experience in the field, and development plans influenced the decision to approve the leases. Ono noted that the need to keep the price of the new electricity at or below oil-generated prices will be submitted to the Hawaii Public Utilities Commission.

**ALTERNATE ENERGY PRICING POSES A PROBLEM IN HAWAII.** Federal regulations regarding the pricing of electric power from alternate energy sources may need to be changed for the state of Hawaii.

The federal government says the equitable rate for the purchase of power from alternative sources is "the avoided cost" of the fossil fuel. That is, the utility should be willing to pay for the alternate whatever it would have spent to buy that oil. And, says the U.S. Department of Energy, the utility is required to buy any power offered it by an alternate source.

On the Mainland, there is little chance that an alternative to a fossil fuel could possibly offer more electricity than a utility could use. But it's a distinct possibility in places in Hawaii. For example, on the Island of Hawaii, almost 40 percent of the electricity now comes from an alternate to oil—bagasse (sugar cane waste). The island's total demand is small. There is a distinct possibility that once geothermal power is developed on the Big Island, there could be much more power than the utility there could possibly use.

Barnwell Industries, which is attempting to develop geothermal fields on the Island of Hawaii (BULLETIN, Vol. 10, Nos. 2 & 3, Feb/March and April 1981), has already agreed that if the utility passes along the savings to the consumer, it will sell its geothermal resource to Hawaii Electric Light Company at a reduced rate rather than the avoided cost of existing fuels. But both Barnwell and Windfarms, Inc., which plans a major wind energy project on Oahu, are concerned that regulations proposed by the Hawaii Public Utilities Commission (HPUC) would possibly allow a utility to breach existing contracts.

While much of the HPUC's proposed regulations are based on federal regulations, those federal regulations have been thrown into doubt by a decision rendered in February 1981 by a federal judge in Mississippi. He declared unconstitutional part of the legislation dealing with public utilities because it usurped state authority.

In Hawaii, the Public Utilities Division of the Hawaii Department of Regulatory Agencies asked the HPUC to defer action until the impact of the Mississippi decision is clear.



MEMO

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

*Geothermal*

TO MR. ROBERT CHUCK - MANAGER-CHIEF ENGINEER

FROM Steve Nishimoto

DATE June 1, 1981

SUBJECT Lanipuna Well #1 Pohoiki, Puna, Hawaii

MESSAGE: On May 29, 1981 temperature survey was conducted at subject well by Water

Rewources International, Inc. and the following conditions were observed:

1. Depth of well 8,400 feet
2. Temperature 700° F.

RECEIVED  
81 JUN 3 4 9: 01  
DIV. OF WATER &  
LAND DEVELOPMENT

SIGNED

*Steve Nishimoto*

MEMO

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

TO: MR. ROBERT CHUCK - MANAGER-CHIEF ENGINEER

FROM: Steve Nishimoto

DATE: June 1, 1981

SUBJECT: Lanipuna Well #1 Pohoiki, Puna, Hawaii

MESSAGE: On May 29, 1981 temperature survey was conducted at subject well by Water

Rewources International, Inc. and the following conditions were observed:

1. Depth of well 8,400 feet
2. Temperature 700° F.

SIGNED

*Steve Nishimoto*

Thanks to Dan J.

Carryover No. 1  
Planned Program

Conductor Pipe - 22" dia to 68' depth

Surge casing - 13 3/8" dia to 1020' depth

Intermediate Casing - 9 5/8" dia to 3800' ± depth

A-2 3-30-81

Depth drilled = 3500 ft  
9 5/8" casing set to bottom (3500 ft)

7000

MEMO

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

MR. ROBERT CHUCK - MANAGER-CH IEF ENGINEER

FROM Steve Nishimoto

DATE March 30, 1981

SUBJECT Lanipuna Well #1 Poheiki, Puna, Hawaii

MESSAGE: On March 27, 1981 pressure test was performed on Lanipuna Well #1 by Water Resources International, Inc. and the following conditions were observed:

- |                     |                        |
|---------------------|------------------------|
| 1. Depth of well    | 3,500 feet             |
| 2. Casing at bottom | 9 5/8"                 |
| 3. Pressure         | 1,000 lbs. per sq. in. |

Pressure held over 30 minutes.

SIGNED

*Steve Nishimoto*

MEMO

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

MR. ROBERT CHUCK - MANAGER-CH IEF ENGINEER

FROM Steve Nishimoto

DATE March 30, 1981

SUBJECT Lanipuna Well #1 Pohoiki, Puna, Hawaii

MESSAGE: On March 27, 1981 pressure test was performed on Lanipuna Well #1 by Water Resources International, Inc. and the following conditions were observed:

1. Depth of well 3,500 feet
2. Casing at bottom 9 5/8"
3. Pressure 1,000 lbs. per sq. in.

Pressure held over 30 minutes.

DIV. OF WATER &  
LAND DEVELOPMENT

81 APR 2 A 8:55

RECEIVED

SIGNED

*Steve Nishimoto*

Lempuna #1

# State OKs Geothermal Well Permit

By Harry Whitten  
Star-Bulletin Writer

After insisting that the electricity produced would be priced below that of production from fossil fuels, the state land board yesterday granted another geothermal mining lease.

The applicant was Barnwell Geothermal Corp., which asked for a direct lease of geothermal resources on land in Puna, Big Island, belonging to J.T. Trading Co., Auto Imports of Hawaii and Promised Land Corp.

The lease was sought from the state because it claims ownership of geothermal resources as a mineral, even though the land surface is privately owned.

Barnwell Geothermal and its affiliate, Geothermal Exploration and Development Corp. (GEDCO), started drilling Monday on their second geothermal well in Puna.

Edgar Craddick, president of GEDCO, and Samuel M. Eisenstat, a director of Barnwell Geothermal, were questioned closely on pricing by Roland Higashi, Big Island member of the Department of Land and Natural Resources.

Both men said that the price of geothermal-produced electricity would not be linked to the price of oil and that any savings realized would be passed on to the public.

The land board adopted Higashi's motion to approve the lease, subject to submission of a letter from Barnwell on pricing methodology which would go to Susumu Ono, land board chairman, for approval. The motion also required sending a copy of the letter to the state Public Utilities Commission.

THE LAND BOARD had granted a geothermal mining lease on Puna land Dec. 19 to Kapoho Land Partnership, which entered into agreement with a joint venture, Thermal-Dillingham, for exploration and development of geothermal resources.

Craddick said it would take Barnwell three months to drill its new well and a month to test it. Barnwell and GEDCO can drill a maximum of three wells a year, he said.

The companies have state and county permits that will allow drilling of up to 21 exploratory wells in Puna. Craddick said the companies are prepared to expand geothermal work, depending on the market.

Eisenstat said the companies will place facilities away from people's residences and will take every reasonable precaution to minimize noise and hydrogen-sulfide emissions.

The lease granted by the state has a maximum term of 65 years. The lessee shall pay to the state \$770 per year for the right to exploit geothermal resources, with payment being a credit against production royalties.

The royalties would be 10 percent of the gross amount or value of geothermal resources produced under the lease and 5 percent of gross proceeds from sale of any geothermal byproduct extracted from the effluent.

*gent con*

February 13, 1981

WAPORA Inc.  
6900 Wisconsin Ave.  
Chevy Chase, MD 20015

Attn: Mrs. Gene Beeland

Gentlemen:

In response to your request, the Hawaii Department of Land and Natural Resources has issued the following geothermal well drilling permits.

<u>Date</u>	<u>Well Designation</u>	<u>Location</u>
9-26-78	FNB No. 2	Near Puu Anahulu, North Kona District, Island of Hawaii. USGS 7½ minute quad. map "Puu Anahulu": Lat. 19° 48' 44", Long. 155° 50' 18"
✓ 1-10-80	Ashida No. 1	South-southeast of Pahoa town 3.6 miles, Puna District, Island of Hawaii. USGS 7½ minute quad. map "Pahoa South": Lat. 19° (26) 59", Long. 154° (55) 32"
✓ 1-20-81	<del>XXXXXXXXXX</del>	East-southeast of Pahoa town 4.0 miles, Puna District, Island of Hawaii. USGS 7½ min. quad. map "Pahoa South": Lat. 19° (26) 59", Long. 154° (53) 33"

Very truly yours,

83

ROBERT T. CHUCK  
Manager-Chief Engineer

DL:ai

*597*

BARNWELL GEOTHERMAL CORPORATION  
RECEIVED

February 9, 1981

81 FEB 12 A 7: 34

*Copy ✓*

Mr. Sidney M. Fuke, Director  
Planning Department  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Reference: Lanipuna Well No. 1  
Keahialaka, Puna, Hawaii

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

DEPT. OF WATER  
& DEVELOPMENT

FEB 10 A 9: 48

RECEIVED

Dear Mr. Fuke:

Drilling began at the Lanipuna Well No. 1 site today, February 9, 1981.

Our Mr. Bill Craddick will deliver to you, today, the metes and bounds survey requested. Procedures will be in accordance with our drilling plan presented to the State, for which our drilling permit was issued.

We are working five (5) days per week, Saturday and Sunday off, 24 hours per day unless extra-ordinary circumstances would necessitate work on Saturday and/or Sunday in which case we will advise you of the nature of the emergency.

Mr. Bill Craddick can be reached in Hilo at Phone No. 959-6634, or Mobile Unit No. 0453 (car), or Mobile Unit No. 0594 (job site).

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

*Bill Craddick*  
E. C. Craddick  
President

ECC/sm

cc: ✓ Mr. Susumo Ono - DLNR, Honolulu  
Mr. Clifford Lum - Hilo  
Mr. Bill Craddick - Hilo



# BARNWELL GEOTHERMAL CORPORATION

January 23, 1981

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

Attention: Mr. Susumo Ono, Chairman

Gentlemen:

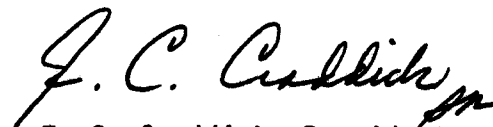
Re: Lanipuna Well No. 1  
Keahialaka, Puna, Hawaii

In compliance with Regulation 8 of the Department of Land and Natural Resources, we are submitting the following documents:

1. Geothermal Resources Well Indemnity Bond No. 877399 in the amount of \$50,000.00 - 2 copies.
2. The fully and properly executed Designation of Agent form - 2 copies.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

  
E. C. Craddick, President

sm  
Encl.

RECEIVED

81 FEB 5 AIO: 42

DIV. OF WATER &  
LAND DEVELOPMENT

State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES

DESIGNATION OF AGENT

In compliance with Rule 8.2 of Regulation 8 of the Department of Land and Natural Resources, notice is hereby given and I hereby certify that I  
(I, we) (I, we)

E. C. Craddick

Name(s)

representing Barnwell Geothermal Corporation (owner-operator)  
(firm or corporation)

of Honolulu, State of Hawaii, have appointed, authorized and  
(City)

empowered Barnwell Geothermal Corporation  
(name of designee)

whose address is 2828 Paa Street, Suite 2085, Honolulu, HI 96819, State of Hawaii,  
as our agent in the State of Hawaii\*  
(my, our)

who shall be the repository for all well records for each geothermal well drilled by  
us, and upon whom all orders, notices and processes under the provisions of  
(me, us)  
said Regulation 8 may be served.

This notice supersedes all previous designations made for the above-described purposes.

IN WITNESS WHEREOF I have signed this certificate this 22nd day of  
January, 19 81. (I, we)

Witness:

Sandra Meyer

Name and Title E. C. Craddick, President

Name and Title

Agent's acceptance:

E. C. Craddick

NOTE: An owner or operator may appoint himself as agent.

\*Should the owner or operator filing this form choose to appoint more than one agent, the phrase, "State of Hawaii" should be deleted and the exact area for which the agent is to be appointed should be inserted. A separate form must be filed for each agent.

Rule 8.2. Designation of Agent. Any person who has drilled, is drilling, or proposes to drill any geothermal well shall designate on forms provided by the Department an agent who shall be a resident of the State of Hawaii and upon whom may be served all orders, notices, and processes of the Department or any court of law. Every person so appointing an agent shall, within five days after the termination of any such agency, notify the Chairman in writing of such termination, and unless operations are discontinued, shall appoint a new agent. All changes in the address of an agent must be recorded with the Chairman within five days of the change of the address.

BOND NO. 877399

Executed (2)

GEOTHERMAL RESOURCES WELL INDEMNITY BOND  
(\$50,000 Individual Well Bond)

KNOW ALL MEN BY THESE PRESENTS:

That we Barnwell Geothermal Corporation

as principal; and Seaboard Surety Company, a New York corporation,  
organized and existing under and by virtue of the laws of the STATE OF HAWAII and authorized  
to transact surety business in the STATE OF HAWAII, as surety, are held and firmly bound unto  
the State of Hawaii in the full and just sum of FIFTY THOUSAND AND NO/100 DOLLARS (\$50,000.00)  
lawful money of the United States of America, to be paid to the said State of Hawaii, for which pay-  
ment, well and truly to be made, we do hereby bind ourselves, our heirs, executors, administra-  
tors, successors and assigns, jointly and severally, firmly by these presents.

Signed, sealed, delivered and dated this 22nd day of January, 1981, at Honolulu,  
City and County of Honolulu, State of Hawaii.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH THAT,

WHEREAS, said principal is about to acquire, drill, redrill, deepen, operate, maintain or  
abandon a geothermal resources well designated as Well No. Lanipuna #1, TMK: 1-3-9:7,  
Latitude \_\_\_\_\_, Longitude \_\_\_\_\_, Island of Hawaii and is  
required to file this bond in connection therewith in accordance with Rule 9.4 of Regulation 8  
of the Department of Land and Natural Resources, State of Hawaii.

NOW, THEREFORE, if said Barnwell Geothermal Corporation  
the above bounden principal, shall well and truly comply with all the provisions of said  
Regulation 8 and shall obey all lawful orders of the Chairman of the Board of Land and Natural  
Resources, or his representative, if not appealed to the Board of Land and Natural Resources, or  
upon affirmance thereof by the Board of Land and Natural Resources, if appealed thereto, and  
shall pay all charges, costs, and expenses incurred by the Chairman or his representative, in  
respect of such well or the property or properties of said principal, or assessed against such  
well or the property or properties of such principal, in pursuance of the provisions of said  
Regulation 8, then this obligation shall be void; otherwise, it shall remain in full force and  
effect.

Barnwell Geothermal Corporation

Principal

By: [Signature]  
Its: [Signature]

Approved as to form:

Deputy Attorney General

Dated: \_\_\_\_\_

Seaboard Surety Company

Surety

By: [Signature]  
Its: Attorney-in-Fact  
John T. Lettieri  
And By: \_\_\_\_\_  
Its: \_\_\_\_\_

STATE OF HAWAII )  
 ) ss  
City and County of Honolulu )

On this 22nd day of January, 1981, before me appeared  
E.C. Craddick ~~XXXX~~ he is  
to me personally known, who, being by me duly sworn, did say that ~~XXXX~~ he is the  
President ~~and~~ and  
respectively, of Barnwell Geothermal Corporation  
and that the seal affixed to the foregoing instrument is the corporate seal of said  
corporation, and that the foregoing instrument was signed and sealed in behalf of  
said corporation by authority of its Board of Directors, and said E.C. Craddick  
E.C. Craddick ~~and~~ and  
acknowledged the foregoing instrument to be the free act and deed of said corpora-  
tion.

Dawn L. Matsui  
Notary Public,                      Judicial Circuit,  
State of Hawaii  
My commission expires: 10/21/84

STATE OF HAWAII )  
 ) ss  
City and County of Honolulu )

On this 22nd day of January, 1981, before me appeared  
John T. Lettieri ~~XXX~~ he is  
to me personally known, who, being by me duly sworn, did say that ~~XXXX~~ he is the  
Attorney-in-Fact ~~and~~ and  
~~XXXXXXXXXX~~ of SEABOARD SURETY COMPANY  
and that the seal affixed to the foregoing instrument is the corporate seal of said  
corporation, and that the foregoing instrument was signed and sealed in behalf of  
said corporation by authority of its Board of Directors, and said John T. Lettieri  
John T. Lettieri ~~and~~ and  
acknowledged the foregoing instrument to be the free act and deed of said corpora-  
tion.

Dawn L. Matsui  
Notary Public,                      Judicial Circuit,  
State of Hawaii  
My commission expires: 10/21/84



J. RUSSELL CADES  
WILLIAM L. FLEMING  
HAROLD S. WRIGHT  
C. FREDERICK SCHUTTE  
JAMES S. CAMPBELL  
A. SINGLETON CAGLE  
RICHARD L. GRIFFITH  
ROBERT B. BUNN  
WILLIAM M. SWOPE  
DONALD A. BECK  
DOUGLAS E. PRIOR  
E. GUNNER SCHULL  
THOMAS P. HUBER  
MICHAEL P. PORTER  
DONALD E. SCEARCE

EDWARD A. JAFFE  
RICHARD A. HICKS  
ROGER H. EPSTEIN  
JEFFREY S. PORTNOY  
EDWARD W. BOYLE  
BERNICE LITTMAN  
NICHOLAS C. DREHER  
MARK A. HAZLETT  
ROBERT A. ROWAN  
PHILIP J. LEAS  
MICHAEL A. SHEA  
DAVID C. LARSEN  
STEPHEN B. MACDONALD  
LARRY T. TAKUMI  
RICHARD J. KOWEN

RODNEY S. NISHIDA  
WILLIAM A. CARDWELL  
RICHARD R. CLIFTON  
DARRYL H. W. JOHNSTON  
JOHN R. AUBE  
ROY A. VITOUSEK III  
STANLEY M. KURIYAMA  
NELSON N. S. CHUN  
NANCY J. STIVERS  
EDWARD R. BROOKS  
WILLIAM J. WYNHOFF

C. MICHAEL HARE  
VITO GALATI  
TED C. HONOLD  
CARY S. MATSUSHIGE  
DONALD S. SCHERER  
DAVID SCHULMEISTER  
TERRY L. DAY  
BRUCE T. YOSHIDA  
KRISTIN BRANDSMA  
RICHARD J. BENDER

CADES SCHUTTE FLEMING & WRIGHT  
ATTORNEYS AT LAW

1000 BISHOP STREET

P. O. Box 939

HONOLULU, HAWAII 96808

TELECOPIER (808) 531-8738

TELEX 7238589 CABLE LEX

TELEPHONE (808) 521-9200

81 JAN 20 P12:30

ARTHUR G. SMITH (1882-1966)  
URBAN E. WILD (1891-1952)  
EUGENE H. BEEBE (1889-1966)  
CHARLES A. GREGORY (1902-1972)

OF COUNSEL  
MILTON CADES  
GILBERT E. COX

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

January 20, 1981

BY HAND

Mr. Susumu Ono  
Chairman  
Board of Land  
and Natural Resources  
State of Hawaii  
1151 Punchbowl Street  
Honolulu, Hawaii 96813

Re: Barnwell Geothermal Corporation  
Application for Direct Geothermal  
Mining Lease

Dear Mr. Ono:

Please find enclosed three (3) copies of pages 14 to 21 of Exhibit "E" which were inadvertently omitted from the above-referenced application.

Very truly yours,

*Nancy J. Stivers*

Nancy J. Stivers  
for

CADES SCHUTTE FLEMING & WRIGHT

Enclosures

January 26, 1981

Mr. William Sewake  
Manager  
Department of Water Supply  
County of Hawaii  
Hilo, Hawaii 96720

Dear Mr. Sewake:

Geothermal Well Drilling Permit to Barnwell Geothermal Corp.

For your information, the Department of Land and Natural Resources has issued a permit to Barnwell Geothermal Corp. for the drilling and testing of a geothermal well at Keahialaka, Puna, Hawaii (TMK 1-3-9: 7), in accordance with the Department's Regulation 8. The application for the permit was reviewed by the Division of Water and Land Development.

The well is located on privately owned, non-reserved land. A copy of the Well Permit and a map showing the location of the proposed well is attached.

Very truly yours,

AS/SUSUMUONO

SUSUMU ONO  
Chairman of the Board

Enc.

cc: Land Management

January 16, 1981

January 18, 1981

**MEMORANDUM**

**TO: Board Members**

**FROM: Susumu Ono**

**SUBJECT: Geothermal Well Drilling Permit to Barnwell Geothermal Corp.**

For your information, the Department of Land and Natural Resources has issued a permit to Barnwell Geothermal Corp. for the drilling and testing of a geothermal well at Keahialaka, Puna, Hawaii (TMK 1-3-9: 7), in accordance with the Department's Regulation 8. The application for the permit was reviewed by the Division of Water and Land Development.

The well is located on privately owned, non-reserved land. A copy of the Well Permit and a map showing the location of the proposed well is attached.

AS/SUSUMU ONO

**SUSUMU ONO**  
**Chairman of the Board**

**TF: DL: dh**

**Enc.**

bcc: Land Management



January 20, 1981

Mr. Sidney Fuke  
Director, Planning Dept.  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Dear Mr. Fuke:

Geothermal Well Drilling Permit to Barnwell Geothermal Corp.

For your information, the Department of Land and Natural Resources has issued a permit to Barnwell Geothermal Corp. for the drilling and testing of a geothermal well at Keahialaka, Puna, Hawaii (TMK 1-3-8: 7), in accordance with the Department's Regulation 8. The application for the permit was reviewed by the Division of Water and Land Development.

The well is located on privately owned, non-reserved land. A copy of the Well Permit and a map showing the location of the proposed well is attached.

Very truly yours,

/s/ SUSUMU ONO

SUSUMU ONO  
Chairman of the Board

TF: DL: dh

bcc: Land Management

GEORGE R. ARIYOSHI  
GOVERNOR



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

**DIVISIONS:**  
CONSERVATION AND  
RESOURCES ENFORCEMENT  
CONVEYANCES  
FISH AND GAME  
FORESTRY  
LAND MANAGEMENT  
STATE PARKS  
WATER AND LAND DEVELOPMENT

**GEOHERMAL WELL DRILLING PERMIT**  
**Lanipuna No. 1**

**TO: Barnwell Geothermal Corp.**  
**c/o 2828 Paa Street**  
**Honolulu, Hawaii 96819**

**Your application for a permit to drill a geothermal well as follows:**


**Well Designation: Lanipuna No. 1**  
**Site Designation: Easement "GW-5", (2 acs.)**  
**Location: TMK 1-3-9: 7, Keahialaka, Puna, Hawaii**  
**Operator: Barnwell Geothermal Corp.**  
**Drilling Contractor: Water Resources, Inc.**  
**Ground Elevation: 600'+**  
**Total Depth: 7000'**

**has been approved.**

**You are hereby granted permission to drill the geothermal well described above in accordance with the Department's Regulation 8 and the following conditions:**

- 1. This permit shall become valid only upon receipt of:**
  - a. A Well Indemnity Bond in the amount of \$50,000.**
  - b. A fully and properly executed Designation of Agent form.**
- 2. All work shall be performed in accordance with the Geothermal Drilling Program submitted with your application, the Department's Regulation 8, and all other applicable Federal, State, and County laws, ordinances, rules and regulations.**
- 3. If there are any contemplated changes in the proposed drilling operations or work, the applicant shall obtain the Chairman's approval prior to the execution of any such contemplated change of work.**

4. The Department shall be notified, with reasonable time allowed for travel to the site, to measure and/or verify the measurement of the static water level under Phase II, Item 3, of the Drilling Program.
5. Under Phase II (Item 10) and Phase III (Item 10) of the Drilling Program, the open hole shall be logged for caliper, temperature, and borehole fluid resistivity.
6. This permit is only for drilling and testing the well and does not imply or confer any approval or rights to use the well for geothermal production.
7. This permit shall expire 365 days from the date of this permit.
8. It is understood that an application for a geothermal lease, pursuant to your letter of January 19, 1981, shall be filed with this department.
9. Issuance of this drilling permit does not constitute a waiver of any State claim to the geothermal rights.

  
\_\_\_\_\_  
SUSUMU ONO, Chairman  
Board of Land and Natural Resources

1/20/81  
Date of Permit

Bob  
What happened  
to permit application?  
Jed

Jenny D.  
Bob Chuck  
Please attend  
meeting in morning  
with Barwell reps  
today at 1:30. They want  
quick permit approval  
Friday.

RECEIVED  
81 JAN 20 AID: 14  
DIV. OF WATER &  
LAND DEVELOPMENT

24

1  
20  
12

# BARNWELL GEOTHERMAL CORPORATION

81 JAN 19 P 4: 24

January 19, 1981

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

Mr. Susumo Ono  
Chairman of the Board  
Department of Land and  
Natural Resources  
1151 Punchbowl Street  
Honolulu, Hawaii

Dear Mr. Ono:

Re: Lanipuna Well No. 1  
Geothermal Drilling Permit

On November 3, 1980 Barnwell Geothermal Corporation submitted its application for the above-referenced drilling permit. In anticipation that action on the permit application would be forthcoming by January 1, 1981, as prescribed by the Geothermal Regulations promulgated by the Department of Land and Natural Resources, all necessary preparations were made to commence drilling operations at the beginning of the year. We were advised on January 16, 1981 that issuance of the permit had been deferred due to the possibility that the State of Hawaii may claim ownership of the geothermal resources underlying the proposed drill site. This letter is written in an attempt to reach a mutually acceptable agreement which would allow Barnwell Geothermal Corporation to proceed with its scheduled drilling operations without prejudicing any potential claim by the State of Hawaii.

We recognize the Department's desire to refrain from taking any action which might impair a possible State claim to the geothermal rights. Our research indicates, however, that neither the Land Commission award nor the patent covering the property in question contained a reservation of mineral rights to the State. Furthermore, even if the property is subject to an implied reservation of mineral rights, we submit that issuing the drilling permit would not adversely affect any State interest.

A drilling permit does not transfer any property rights. The purpose of the permit, as specified in the Geothermal Regulations, is simply to regulate geothermal operations in order to assure that they are conducted in a safe and efficient manner. Moreover, a drilling permit is required regardless of whether the well is located on private lands or on reserved

Mr. Susumo Ono  
January 19, 1981  
Page Two

lands. Consequently, issuance of a drilling permit is not any indication that the resource is privately owned.

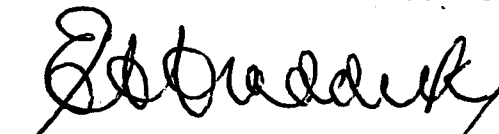
Any further delay in issuing the drilling permit may have significant economic consequences for both the State of Hawaii and Barnwell. A developed geothermal resource offers Hawaii the opportunity to achieve its stated goal of energy self-sufficiency. Given this fact and our publicly expressed intention to price geothermally generated electricity below electricity produced by fossil fuels, it is apparent that the suspension of our operations is not in Hawaii's best interest. The cost of any such delay to Barnwell will be more immediately since, consistent with our commitment to develop the resource in the most expeditious and responsible way, we are maintaining our drilling rig and crews in readiness at a cost to us of approximately \$4,500.000 daily.

In summary, issuance of a drilling permit is strictly a regulatory matter. Approval of our permit application does not foreclose the State from asserting that the geothermal rights have been implicitly reserved. In order to accommodate the State's concerns, however, we propose that the permit be granted subject to the express condition that its issuance does not constitute a waiver of any State claim to the geothermal rights. In addition, we agree to apply for a lease from the State covering such geothermal rights on the subject property as may belong to the State. We believe that this arrangement, as well as our repeated assurances that we are prepared to pay standard royalties to any party determined to be the legal owner of the geothermal rights, will sufficiently protect the State's interests.

We hope that this proposal meets with your approval.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION



F. C. Craddick, President

ECC/sm

Download  
24

# BARNWELL GEOTHERMAL CORPORATION

81 JAN 19 P 4: 24

January 19, 1981

DEPT. OF LAND  
& NATURAL RESOURCES  
STATE OF HAWAII

Mr. Susumo Ono  
Chairman of the Board  
Department of Land and  
Natural Resources  
1151 Punchbowl Street  
Honolulu, Hawaii

Dear Mr. Ono:

Re: Lanipuna Well No. 1  
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We recognize the Department's desire to refrain from taking any action which might impair a possible State claim to the geothermal rights. Our research indicates, however, that neither the Land Commission award nor the patent covering the property in question contained a reservation of mineral rights to the State. Furthermore, even if the property is subject to an implied reservation of mineral rights, we submit that issuing the drilling permit would not adversely affect any State interest.

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Mr. Susumo Ono  
January 19, 1981  
Page Two

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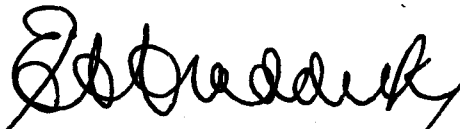
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In summary, issuance of a drilling permit is strictly a regulatory matter. Approval of our permit application does not foreclose the State from asserting that the geothermal rights have been implicitly reserved. In order to accommodate the State's concerns, however, we propose that the permit be granted subject to the express condition that its issuance does not constitute a waiver of any State claim to the geothermal rights. In addition, we agree to apply for a lease from the State covering such geothermal rights on the subject property as may belong to the State. We believe that this arrangement, as well as our repeated assurances that we are prepared to pay standard royalties to any party determined to be the legal owner of the geothermal rights, will sufficiently protect the State's interests.

We hope that this proposal meets with your approval.

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

  
E. C. Craddick, President

ECC/sm



January 15, 1980

**MEMORANDUM**

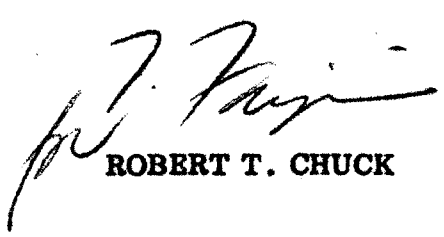
**TO:** Mr. James Detor

**FROM:** Robert T. Chuck

**SUBJECT:** Application for Geothermal Well Drilling Permit for Proposed  
Lanipuna Well No. 1 from Barnwell Geothermal Corp., TMK 1-3-9: 7

We have under review an application from Barnwell Geothermal Corporation to drill a geothermal well designated Lanipuna No. 1 and located within TMK 1-3-9: 7, Puna District, Hawaii.

We would appreciate your determination of whether or not the proposed well site is located on reserved lands.

  
ROBERT T. CHUCK

DL: dh

Enc.: Application/map

6797 ✓  
BARNWELL ~~RECEIVED~~ GEOTHERMAL CORPORATION

80 NOV 13 P 3: 08

November 3, 1980

DIV. OF WATER &  
LAND DEVELOPMENT

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

Reference: Lanipuna Well No. 1  
Drilling Permit Application

Gentlemen:

In accordance with Regulation on Geothermal Resources and Drilling in Hawaii, Regulation 8, Rule 9 and 8.2, we herewith make application for a drilling permit.

- a) Applicant - Barnwell Geothermal Corporation  
2828 Paa Street, Suite 2085  
Honolulu, Hawaii 96819

Lessor and Owner of Mineral Rights

J. T. Trading Company, Ltd., Auto Imports of Hawaii, Inc.  
John S. Tolmie, Jr. and David S. DeLuz  
C/o 811 Kaneolehua Avenue, Hilo, Hawaii 96720

Lessee of Mineral Rights

Geothermal Exploration & Development Corp.  
and  
Barnwell Industries, Inc.  
C/o 2828 Paa Street, Suite 2085  
Honolulu, Hawaii 96819

Geothermal mineral rights on approximately 724 acres,  
TMK: 1-3-09-7, 1-3-08:6, 7, and 19, have been leased to  
GEDCO and filed with the Bureau of Conveyances on  
June 12, 1980.

Special Land Use Permit - In process.

- b) Designation of Well - Lanipuna Well No. 1  
c) Plot Plan - as per attached. Elevation +600 feet.  
d) Purpose - Exploratory to determine a commercial source of  
geothermal power.

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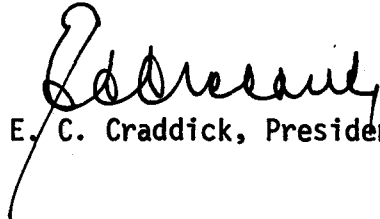
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DIVISION OF  
LAND MANAGEMENT

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- e) Description of Program - as per attached.
- f) Bond - GEDCO agrees to file a bond meeting the requirements of Rule 9.4 within ten (10) days after notice of permit approval.
- g) Regulation - GEDCO hereby affirms its intent to perform all work in accordance with the Rules and Regulations and all federal, state and county requirements.
- h) Driller - Water Resources International, Inc., supervised by our Mr. Bill Craddick.
- i) Date of Commencement - December 1980 (tentative date).
- j) Designation of Agent - E. C. Craddick

Very truly yours,

BARNWELL GEOTHERMAL CORPORATION

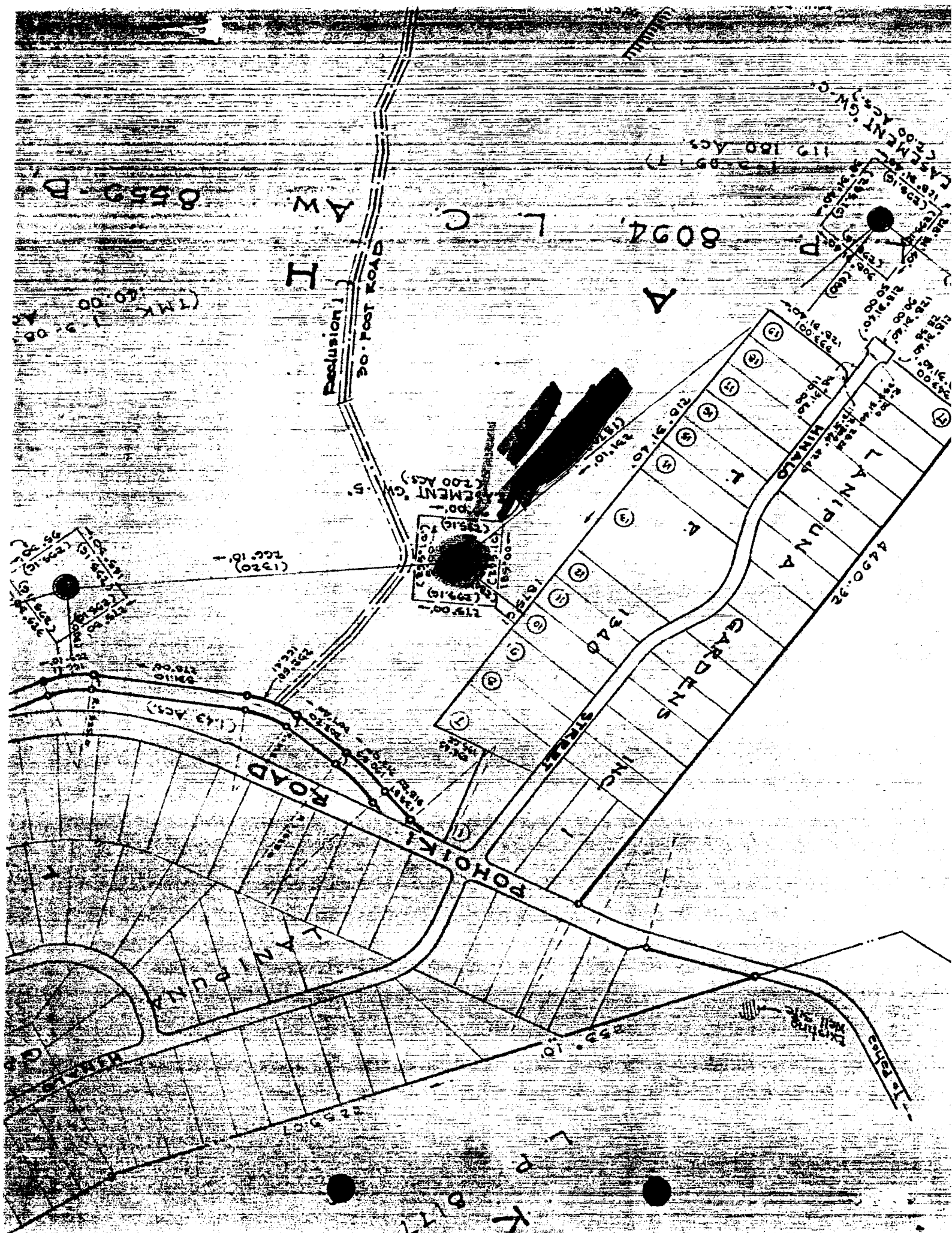


E. C. Craddick, President

ECC/sm

Enclosures: Plot Plan  
Drilling Program  
Well Design Drawing  
Filing Fee of \$100.00

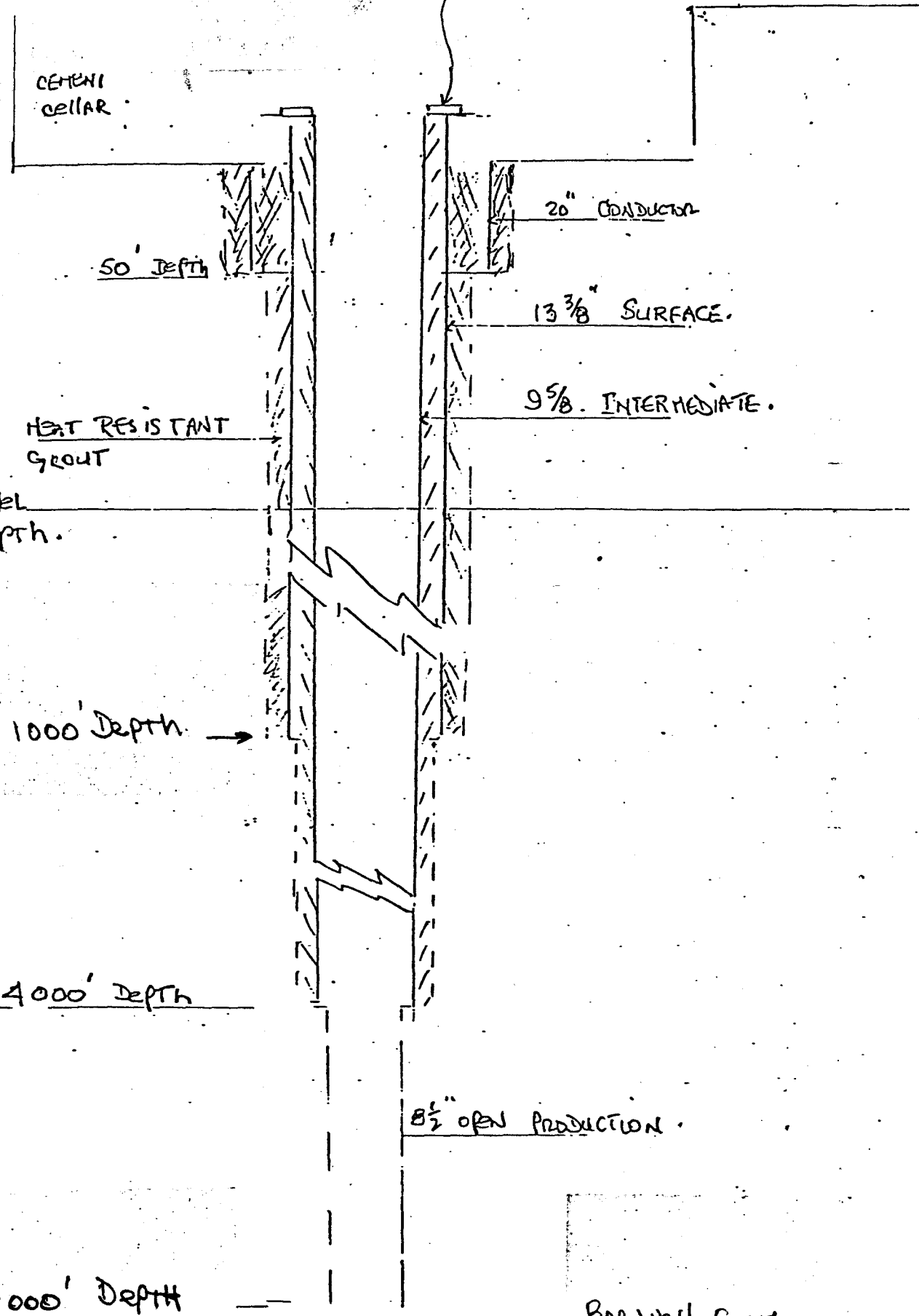
cc: Mr. Bill Craddick, Hilo



LANIPUNA Well #1  
KEAHOLA, PUNA HAWAII

200' Elev.

B.P. ON 9 5/8"



BARNWELL Geotech  
Corp. 10/31/80

LANIPUNA OIL FIELD  
KEAHU OIL FIELD, PUNA HAWAII

B. ON 9 5/8"

00' Elev.

CEMENT  
CELLAR

50' Depth

20" CONDUCTOR

13 3/8" SURFACE.

9 5/8" INTERMEDIATE.

HEAT RESISTANT  
GROUT

TIC WATER LEVEL  
PROX 600' Depth.

1000' Depth

4000' Depth

8 1/2" OPEN PRODUCTION

7000' Depth

BARNHILL Geotech  
Corp. 10/31/90

LANIPUNA Well #1  
KEAHIAKAH, PUNA HAWAII

100' Elev.

8" ON 9 5/8"

CEMENT  
CELLAR

50' Depth

20" CONDUCTOR

13 3/8" SURFACE

9 5/8" INTERMEDIATE

HEAT RESISTANT  
GROUT

TIC WATER LEVEL  
PROX 600' Depth.

1000' Depth

4000' Depth

8 1/2" OPEN PRODUCTION

7000' Depth

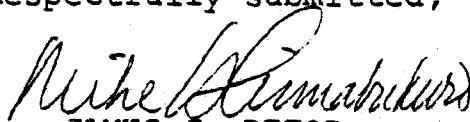
BARNWELL Geoth  
Corp. 10/31/80

Board of Land and  
Natural Resources  
Daniel Clyde Gibbs

May 9, 1980

1. The purchaser be required to pay cash or twenty-five percent of the purchase price down and the balance in ten equal quarterly payments at eleven and one-half percent interest per annum on the unpaid balance.
2. That the use of the subject area, whether in combination, consolidation or otherwise with other lands, shall be in accordance with the appropriate zoning and subdivision ordinances of the County of Hawaii.
3. Other terms and conditions as may be prescribed by the Chairman.

Respectfully submitted,



JAMES J. DETOR

Land Management Administrator

APPROVED FOR SUBMITTAL:



# LANIPUNA NO.1

