1. **Pump Tests Check** Glenn Bauer (initial)
   - Yes No
   - If no, describe deficiency

   **Step-Drawdown Test:**
   - followed WCPI Stds
   - analysis attached
   - proposed pump cap o.k.

   **Aquifer Pump Test:**
   - followed WCPI Stds
   - T & S analysis attached

   **Well Interference:**
   - estimated Steady-State
   - drawdown at 1-mile radius is 1.378 ft.
   - analysis attached

   **Stream Surface Water Impacted:**
   - If yes, identify most probable stream

   **Geology Code for Well Index:** QH1

2. **Construction Check** Mitch Ohye (initial)
   - Yes No
   - If no, describe deficiency

   - data complete
   - followed Special Cond & elevations
   - well database updated

   **Latitude**
   - NAD27 19 46 53.5
   - NAD83 19 46 42.5

   **Longitude**
   - 155 57 22.5
   - 155 57 12.5

3. Charley/Leno/rye (initial) take action based on above analysis

4. Roy (initial) check
5. Subia (initial) finalize w/electronic signature
6. Charley/Leno/rye File
August 25, 2004

Ref:4657-03.pip

Mr. Thad Bond
Kaupulehu Makai Venture
P.O. Box 1119
Kailua-Kona, HI 96745

Dear Mr. Bond:

Pump Installation Permit
Kaupulehu Potable 5 Well (Well No. 4657-03)

Enclosed are two (2) originals of your approved Pump Installation Permit for the captioned well(s) that authorize permanent pump installation work for your well(s). As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 11:

Special Conditions

1. If the elevation benchmark needs to be altered, the permittee, well operator, and/or well owner shall ensure that the benchmark is transferred (or the well resurveyed) and documentation of the new benchmark shall be submitted to the Commission within sixty (60) days after the pump is installed.

2. Please enclose the pump specification and rating curve for the installed pump with the Well Completion Report.

The permittee, well operator, and/or well owner are responsible for all conditions of the permit. This includes ensuring that the pump installation contractor submits a completed Part II of the Well Completion Report form (enclosed) within sixty (60) days after the pump installation work is completed. Be advised that you may be subject to fines of up to $5000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign and have the contractor sign both permit originals and return one for our files. A copy of the Well Completion Report (Part II) and a copy of your water use report form are enclosed for your use.

IMPORTANT - Pump installation shall not commence until a fully signed permit is returned to the Commission. Except for the monthly water use report form, please provide copies of all the information in this packet to your pump installation contractor.
PUMP INSTALLATION PERMIT

Kaupulehu Potable 5 Well, Well No. 4657-03

Note: This permit shall be prominently displayed at the site until the work is completed

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the pump installation for Kaupulehu Potable 5 Well (Well No. 4657-03) at Mauka of Hualalai Resort, Hawaii, TMK 7-2-003: 003, subject to the Hawaii Well Construction & Pump Installation Standards (February 2004) which include but are not limited to the following conditions:

1. The Chairperson to the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, Hi 96809, shall be notified in writing, at least two (2) weeks before any work covered by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The pump installation permit shall be for installation of a 450 gpm rated capacity or less, pump in the well.

3. The permittee, well operator, and/or well owner shall provide and maintain an approved meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on a monthly basis, on forms provided by the Chairperson (attached).

4. The proposed use shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to pump water from a well shall not constitute a determination of correlative water rights. The permittee, well operator, and/or well owner are notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

5. The permittee, well operator, and/or well owner shall complete and submit as-built drawings and Part II - (Permanent) Pump Installation Report of the Well Completion Report (attached) to the Chairperson within sixty (60) days after completion of work.

6. The permittee, well operator, and/or well owner shall comply with all applicable laws, rules, and ordinances, and non-compliance may be grounds for revocation of this permit.

7. The pump installation permit application and any related staff submittal approved by the Commission are incorporated into this permit by reference. This permit is also subject to the Hawaii Well Construction & Pump Installation Standards (February 18, 2004). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

8. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the pump installation permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee, well operator, and/or well owner notice of the proposed action and an opportunity to be heard.

9. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee, well operator, and/or well owner must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

10. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to it or connected with the granting of this permit.

11. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: August 25, 2004
Expiration Date: August 25, 2006

PETER T. YOUNG, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the pump installer have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $5000 per day starting from the permit date of approval.

Permittee’s Signature: _______________________________ Date: __________

Printed Name: _______________________________ Firm or Title: _______________________________

Installer’s Signature: _______________________________ C-57, C-57a, or A License #: __________ Date: __________

Printed Name: _______________________________ Firm or Title: _______________________________

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachments
USGS
Department of Health/ Safe Drinking Water & Wastewater Branch
Hawaii Department of Water Supply
Tom Nance
### Well Check Program

4/1/04 - Revised for update to Well Standards (February 2004)

#### Data Input

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<table>
<thead>
<tr>
<th></th>
<th></th>
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</thead>
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<tr>
<td><strong>Well Number</strong></td>
<td>4657-03</td>
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<tr>
<td><strong>Well Name</strong></td>
<td>Kaupulehu Potable 5</td>
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<tr>
<td><strong>Ground Elevation</strong></td>
<td>1335.4</td>
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<td><strong>Cement Grout</strong></td>
<td>548</td>
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<td><strong>Grouting Method</strong></td>
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<td><strong>Hole Diameter</strong></td>
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<td><strong>Estimated Head</strong></td>
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<td><strong>Open Casing Length</strong></td>
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#### Results

**Well Depth**

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<th>Requirement</th>
<th>Value</th>
<th>Note</th>
<th>Section</th>
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<tr>
<td>Theoretical Thickness of Aquifer</td>
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<tr>
<td>1/4 Aquifer Thickness</td>
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<td></td>
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<tr>
<td>Depth of Well below Sea Level</td>
<td>-80.6</td>
<td>too deep</td>
<td>Section 2.2</td>
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</table>

**Well Casing**

<table>
<thead>
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<th>Requirement</th>
<th>Value</th>
<th>Note</th>
<th>Section</th>
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<tr>
<td>Minimum Wall Thickness</td>
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<tr>
<td>Minimum Wall Thickness per standards</td>
<td>0.375</td>
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<td>Wall Thickness Provided</td>
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<td>Section 2.4(b)</td>
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<td>Minimum Length of Solid Casing</td>
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<td></td>
<td></td>
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<td>Minimum Length of Solid Casing</td>
<td>1197.216</td>
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<tr>
<td>Length of solid casing Provided</td>
<td>1332</td>
<td>okay</td>
<td>Section 2.4(c)</td>
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<tr>
<td>Casing Material</td>
<td>ASTM A139</td>
<td>In compliance</td>
<td>Section 2.4(d)</td>
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<td>(for PVC only - check for 200' limit)</td>
<td>okay</td>
<td></td>
<td></td>
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**Annular Space**

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<th>Value</th>
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<th>Section</th>
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<td>Depth of Grouting</td>
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<td></td>
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<tr>
<td>Depth of Grouting provided</td>
<td>548</td>
<td>okay</td>
<td>Section 2.6(c)</td>
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<td>Minimum Annular Space required</td>
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<td>Thickness of Annular Space</td>
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<td>okay</td>
<td>Section 2.6(d)</td>
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THEIS DRAWDOWN CALCULATION by Glenn Bauer & Roy Hardy with numerical approximations by Huntoon (1980)

FILE NAME = Kaupulehu Potable Well (4657-03)
TEST NAME = Step-Drawdown Test
DATE = May 28, 2004

INPUT PARAMETERS GREEN VALUES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Transmissivity T</td>
<td>45,623 ft.²/day</td>
</tr>
<tr>
<td>Storage Coeff. S</td>
<td>0.200 dimensionless</td>
</tr>
<tr>
<td>Time t</td>
<td>200,000 days</td>
</tr>
<tr>
<td>Aquifer thickness b</td>
<td>128 ft.</td>
</tr>
<tr>
<td>Hydraulic Conductivity K</td>
<td>356.4 ft/day</td>
</tr>
<tr>
<td>Pumping rate Q</td>
<td>0.720 mgd</td>
</tr>
</tbody>
</table>

OBSERVATION WELL

Radial distance r from pumping well 5280 ft.

Time, t (days, years) | u | Drawdown s (W(u)) ft.
----------------------|---|------------------|
0.1                   | 0.00| 0.000            |
1                     | 0.00| 0.000            |
2                     | 0.01| 0.000            |
3                     | 0.01| 0.000            |
4                     | 0.01| 0.000            |
5                     | 0.01| 0.000            |
6                     | 0.02| 0.001            |
7                     | 0.02| 0.002            |
8                     | 0.02| 0.002            |
9                     | 0.03| 0.003            |
10                    | 0.03| 0.003            |
20                    | 0.05| 0.004            |
50                    | 1.37| 0.006            |
100                   | 2.74| 0.008            |
200                   | 5.48| 0.015            |
500                   | 13.70| 0.031           |
1000                  | 27.40| 0.061           |
2000                  | 54.79| 0.122           |
5000                  | 136.99| 0.253          |
10000                 | 273.97| 0.506          |
200,000               | 547.95| 1.012          |

Theoretical drawdown a mile (5,280 ft) from the pumping well when u< 0.01

T = 45,623 ft.²/day
Sp. yield = 0.2
T = 365 days
s = 0.32 ft.

1. Scenerio uses calculated transmissivity from step-drawdown test
Well Name: Kaupulehu Potable Well #5-57-03
Date of Test: May 28, 2004
Date of Analysis: 23-Aug-04

Alternative way for determing T from step-drawdown data (Mink, per. comm)

\[ Q = \frac{ft^3}{d} \]
\[ Q_1 \text{ (gpm)} = 1010 = 194425 \text{ ft}^3/d \]
\[ s = \text{ ft}. \]
\[ Q_2 \text{ (gpm)} = 440 = 84700 \text{ ft}^3/d \]

Set up two equations:

\[ s_1 = jQ_1 + nQ_1^2 \]
\[ s_2 = jQ_2 + nQ_2^2 \]

\[ Q_2 = 84700 \quad s_2 = 2.3 \]
\[ Q_1 = 194425 \quad s_1 = 7.5 \]

Well Depth below sea level = 80

Radius of well (ft) = 0.667 = \( r \)

\[ n = s_1 - \frac{(Q_1/Q_2)s_2}{Q_1(Q_1-Q_2)} \]
\[ j = \frac{s}{Q} - nQ = 1.04E-10 \]

Laminar flow equation:
\[ s = jQ = 3.56551 \]
3.07\% Head loss due to laminar flow

Thiem Eq.
\[ T = \frac{1}{2\pi j} \ln\left(\frac{r_e}{r}\right) \]

\[ r_e = \text{Well Depth BSL} \times 1.6 = 128 \]

Therefore:
\[ T = \frac{1}{2\pi j} \ln\left(\frac{r_e}{r}\right) = 45623 \text{ ft}^2/d \]
Ms. Yvonne Izu  
Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii  96809

Dear Ms. Izu:

Well Completion Report - Part 1 for  
Kaupulehu Potable Well No. 5 (State Well No. 4657-03)

On behalf of the Kaupulehu Makai Venture, we are submitting the completed Well Completion Report - Part 1, Driller's Log, Pump Test Data, and survey elevation for the above-referenced well.

Sincerely,

Tom Nance

cc: Jay Uyeda - HDC

Attachments
1. State Well No.: 4657-03  
Well Name: Kaupulehu Potable Well #5  
Island: Hawaii

2. Address: Mauka of Hualalai Resort  
Tax Map Key: 7-2-003:003


4. Drilling method used during construction:  
- Rotary  
- Percussion  
- Other (describe)

5. Date Well Construction (drilled, cased, grouted) completed: 6/04/04

6. Was the subject well cored?  
- Yes  
- No

7. Initial water-level encountered 1331.58ft. below ground  
Date and time of measurement: 3/18/04 10:00 AM

8. Step-Drawdown Test completed?  
- No  
- Yes

9. Constant Rate Aquifer Test completed?  
- No  
- Yes

Parameters prior to pump test:

10. Water-level: 5.16 ft. above msl  
Date and time of measurement: 5/28/04 8:00 AM

11. Chloride: 90 ppm  
Date and time of sampling: 5/28/04 2:00 PM

12. Temperature: 69°F  
Date and time of measurement: 5/28/04 2:00 PM

13. Fill in the as-built section on the other side of this sheet.

14. Fill in attached surveyor's report.

15. If a pump is not planned to be installed, please describe (below in the remarks section) how well is secured to prevent unauthorized access (example: lockable cover, threaded coupling, etc.)

16. The proposed manufacturer's rated pump capacity is ______ gpm at a head of ______ ft.

17. Remarks: Lockable cover

---

Licensed Driller (print) Blaise Clay  
C-57 Lic. No. AO 05058

Signature  
Date July 7, 2004

Permittee (print) JAY M. UYEDA

Signature  
Date 8/6/04

WCR1 Form 4/29/03 Page 1 of 4
13. AS-BUILT SECTION

Please refer to the HAWAII WELL CONSTRUCTION STANDARDS and PUMP INSTALLATION STANDARDS to ensure that your as-built is in compliance with applicable standards.

Solid Casing Material:
- Carbon Steel: compliant with (check one or more): □ ANSI/AWWA C200 □ API Spec. 5L □ ASTM A53 □ ASTM A139
- Stainless Steel: (check one): □ ASTM A409 (production wells) □ ASTM A5312 (monitor wells)
- ABS Plastic conforming to ASTM F480 and ASTM D1527: (check one) □ Schedule 40 □ Schedule 80
- PVC Plastic conforming to ASTM F480 and (ASTM D1785 or ASTM D2241): (check one) □ Schedule 40 □ Schedule 80 □ Schedule 120
- Thermoset Plastic: (check one)
  □ Filament Wound Resin Pipe conforming to ASTM D2996
  □ Centrifugally Cast Resin Pipe conforming to ASTM D2997
  □ Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517
  □ Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950
  □ PTFE Fluorocarbon Tubing conforming to ASTM D3296
  □ FEP Fluorocarbon Tubing conforming to ASTM D3296

Open Casing Material:
- Carbon Steel: compliant with (check one or more): □ ANSI/AWWA C200 □ API Spec. 5L □ ASTM A53 □ ASTM A139
- Stainless Steel: (check one): □ ASTM A409 (production wells) □ ASTM A5312 (monitor wells)
- ABS Plastic conforming to ASTM F480 and ASTM D1527: (check one) □ Schedule 40 □ Schedule 80
- PVC Plastic conforming to ASTM F480 and (ASTM D1785 or ASTM D2241): (check one) □ Schedule 40 □ Schedule 80 □ Schedule 120
- Thermoset Plastic: (check one)
  □ Filament Wound Resin Pipe conforming to ASTM D2996
  □ Centrifugally Cast Resin Pipe conforming to ASTM D2997
  □ Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517
  □ Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950
  □ PTFE Fluorocarbon Tubing conforming to ASTM D3296
  □ FEP Fluorocarbon Tubing conforming to ASTM D3296

Bench mark elevation: 1335.9 ft., msl
(Survey to nearest 0.01 ft.)

Cement Grout: 548 ft. (min. 70% of distance from ground elevation to top of water surface or 500 ft., whichever is less.)

Annular space between hole and casing (min.3"):
- 3 3/8 in.

Rock or Gravel Packing:
- 8 ft.
- Material: Crushed Basalt
- Rounded Gravel

Total Depth 1416 ft.

Water Level Elevation: 5.16 ft., msl

Solid Casing: (≥ 90% X (Ground Elev.-Water Level Elev))
- Length: 1332 ft.
- Nominal Diameter: 16 in.
- Wall Thickness: 3/8 in.
- Bottom Elevation: 4.40 ft., msl

Open Casing:
- Perforated □ Screen
- Length: 40 ft.
- Nominal Diameter: 16 in.
- Wall Thickness: 5/16 in.
- Bottom Elevation: -35.6 ft., msl

Open Hole:
- Length: 44 ft.
- Diameter: 23 1/2 in.
- Bottom Elevation: -79.6 ft., msl

*msl = mean sea level
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<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, etc.</th>
<th>Dates</th>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, etc.</th>
<th>Dates</th>
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<td>352 to 384</td>
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<td>2-27</td>
<td>715 to 757</td>
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</table>

Remarks:

8-16-94 to 9-1-03 Kaupulehu 5
**DRILLER'S LOG**

**WELL NUMBER:** Hauvelu 45

<table>
<thead>
<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, etc.</th>
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<td>785 to 814</td>
<td>med GRY HARD</td>
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Remarks:
Well Location
State Well No.: 4651-03
Well Name: Kaupulehu Potable Well #5
at Kaupulehu, North Kona, Hawaii, Hawaii
Tax Map Key: 7-2-3: 3 (3rd Div.)

Notes:
Elevations are referred to Mean Sea Level (M.S.L.).

R.YAN M. SUZUKI
LICENSED PROFESSIONAL LAND SURVEYOR
No. 10059
HAWAII, U.S.A.

This map was prepared by me or under my direct supervision.
### STEP-DRAWDOWN PUMP TEST DATA

(not required for wells producing < 100,000 gpd or 70 gpm)

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<th>EC (µmhos)</th>
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Data in this table is for:
- X Pumped Well
- O Observation Well

Remarks
- Start test/ Step 1
- Start pump

Flow Meter Reading Start: 221272290 gallons

Chloride sample taken

Step 2 begin?
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Max possible duration, water level or quality did not stabilize for any 24 period

Begin recovery data next page
Flow meter reading at end of pumped period: 231363.000 gal

1 starting pumping rate Q
2 minimum length of step period of constant pumping rate
3 minimum mandatory Chloride (Cl) measurement/sampling at end of every step
4 Use same ending drawdown figure as start for recovery

Data in this table is for:
- Pumped Well
- Observation Well

Remarks
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**Data in this table is for:** Pumped Well [X] Observation Well [ ]

END TEST Date: **5/28/04** Time of day: **4:00 PM**

ADDITIONAL REMARKS: **Tom Nance on Site**

Person in charge of pump test (print): **Tracy Underwood**

Signature: **Tracy Underwood**

The signature above indicates that the data reported on this form is accurate and true to the best of the person's knowledge who operated this pump test.
### CONSTANT-RATE PUMP TEST DATA

**Pumped Well No.**

**Pumped Well Name:** Kaaupulehu Potable

**Target Q** 500 gpm

**Observation Well No.**

**Distance between Obs. & Pumped Well** _____ ft.

**Reference pt. for depth to water** 1346.06 ft. msl

**Water level measurements by:**
- [ ] steel tape
- [ ] pressure transducer
- [x] airline

**Static Water Level @ start of test** 500 ft. msl

**START TEST** Date: 5/30/04 Time of day: 10:30 AM

Flow Meter Reading Start: 221,363.000 gallons

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<th>Drawdown (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (μmhos)</th>
<th>CF (mg/l)</th>
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Data in this table is for:
- Pumped Well
- Observation Well

Remarks

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**Recovery**
**Pumping**
**Temp.**
**End**
**Data in this table is for:**

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**END TEST** Date: 6/3/04 Time of day: 11:02 AM

**Additional Remarks:** Tom Anne on site at shutdown & recovery

Person in charge of pump test (print): Tracy Underwood

Signature: Tracy Underwood

The signature above indicates that the data reported on this form is accurate and true to the best of the person's knowledge who operated this pump test.
To: Ryan Irinata
From: Greg Fukumitsu
Subject: Executed Well Construction Permit

Please call me to confirm they can proceed w/ drilling.

680 Ala Moana Boulevard, Suite 406 • Honolulu, Hawaii 96813-5411 • Phone: (808) 537-1141 • Fax: (808) 538-7757 • E-mail: greg@tnwre.com
WELL CONSTRUCTION PERMIT

Kaupulehu Potable 5 Well, Well No. 4657-03

Note: This permit shall be prominently displayed at the site until the work is completed

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-138, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Kaupulehu Potable 5 Well (Well No. 4657-03) at Mauna Kea Resort, Hawaii, TMK 7-2-003: 003, subject to the Hawaii Well Construction & Pump Installation Standards (11/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 921, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with 13-138-15, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum 1.5-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels. The permittee, well operator, and/or well owner shall coordinate with the Chairperson and conduct a pumping test in accordance with the Standards (a pumping test worksheet is attached). The permittee, well operator, and/or well owner shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson.

3. In basalt ground water, the depth of the well may not exceed one-fourth (1/4) of the theoretical thickness (41 times initial head) of the basalt ground water unless otherwise authorized by the Chairperson.

4. The permittee, well operator, and/or well owner shall incorporate mitigation measures to prevent construction debris from entering the aquatic environment, to schedule work to avoid periods of high rainfall, and to revegetate any cleared areas as soon as possible.

5. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee, well operator, and/or well owner shall stop work and contact the Department's Historic Preservation immediately.

6. The proposed well construction shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to construct the well shall not constitute a determination of correlative water rights.

7. The following shall be submitted to the Chairperson within sixty (60) days after completion of work:
   b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawing of the well.
   d. Plot plan and map showing the exact location of the well.
   e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other data.

8. The permittee, well operator, and/or well owner shall comply with all applicable laws, rules, and ordinances; non-compliance may be grounds for revocation of this permit.

9. The well construction permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (January 23, 1997; HWCPIS). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

10. The permit may be revoked by the Commission if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee, well operator, and/or well owner notice of the proposed action and an opportunity to be heard.

11. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee, well operator, and/or well owner must apply for a well abandonment permit in accordance with §13-138-120 prior to any well sealing or plugging work.

12. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.

13. Special conditions in the attached covertransmittal letter are incorporated herein by reference.

Date of Approval: December 3, 2003
Expiration Date: December 3, 2005

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the driller have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: ___________________________ Date: 2/5/04
Printed Name: ___________________________ Firm or Title: Kaupulehu Maka Ventures
Driller's Signature: ___________________________ C-57 License #: 17737 Date: 2-5-04
Printed Name: ________________ Firm or Title: Water Resources Int'l Inc.

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachment

USGS
Department of Health's Safe Drinking Water, Wastewater, and Clean Water Branches
Hawaii Department of Water Supply
Tom Nance Water Resource Engineering
FROM: ERNIE
TO: ANAKALEA, P.
TO: LAU, E.
TO: MATHIAS, T.
TO: CHING, F.
TO: NAKAMA, L.
TO: DANBARA, S.
TO: NAKANO, D.
TO: FUJII, N.
TO: OHYE, M.
TO: GOODING, K.
TO: SAKODA, E.
TO: HARDY, R.
TO: SUBIA, S.
TO: HIGA, D.
TO: SWANSON, S.
TO: ICE, C.
TO: UYENO, D.
TO: IMATA, R.
TO: YODA, K.
TO: KUNIMURA, I.

DATE: FEB - 9
SUSPENSE DATE: 

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FOR: Approval
FOR: Signature
FOR: Information
FOR: See Me
FOR: Review & Comment
FOR: Take Action
FOR: Type Draft
FOR: Type Final
FOR: File
FOR: Xerox ___ copies

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Original.
Mr. Ernest Y.W. Lau  
Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Lau:

The attached executed well construction permit is being submitted on behalf of Kaupulehu Makai Venture. We expect drilling by Water Resources International, Inc. to begin in the latter part of the week of February 9th. Please feel free to call me or Jay Uyeda (808-325-8191) of Hualalai Development Company, if you have any questions.

Sincerely,

Tom Nance

cc: Jay Uyeda - HDC

Attachment
WELL CONSTRUCTION PERMIT

Kaupulehu Potable 5 Well, Well No. 4657-03

Note: This permit shall be prominently displayed at the site until the work is completed.

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Kaupulehu Potable 5 Well (Well No. 4657-03) at Mauka of Hualalai Resort, Hawaii, TMK 2-2003: 003, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum 1½-inch diameter casing tube shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels. The permittee, well operator, and/or well owner shall coordinate with the Chairperson and conduct a pumping test in accordance with the Standards (a pump testing worksheet is attached). The permittee, well operator, and/or well owner shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson.

3. In basal ground water, the depth of the well may not exceed one-fourth (1/4) of the theoretical thickness (41 times initial head) of the basal ground water unless otherwise authorized by the Chairperson.

4. The permittee, well operator, and/or well owner shall incorporate mitigation measures to prevent construction debris from entering the aquatic environment, to schedule work to avoid periods of high rainfall, and to revegetate any cleared areas as soon as possible.

5. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee, well operator, and/or well owner shall stop work and contact the Department's Historic Preservation immediately.

6. The proposed well construction shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to construct the well shall not constitute a determination of correlative water rights.

7. The following shall be submitted to the Chairperson within sixty (60) days after completion of work:
   b. Elevation (referred to mean sea level, msl) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawing of the well.
   d. Plot plan and map showing the exact location of the well.
   e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other data.

8. The permittee, well operator, and/or well owner shall comply with all applicable laws, rules, and ordinances: non-compliance may be grounds for revocation of this permit.

9. The well construction permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (January 23, 1997; HWCPIS). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

10. The permit may be revoked by the Commission if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee, well operator, and/or well owner notice of the proposed action and an opportunity to be heard.

11. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee, well operator, and/or well owner must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

12. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or related to or connected with the granting of this permit.

13. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: December 3, 2003
Expiration Date: December 3, 2005

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlyng condition of my ability to proceed and understand that I shall not commence work until I and the driller have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: _______________ Date: _______________
Printed Name: ___________________________ Firm or Title: ___________________________
Driller's Signature: ___________________________ C-57 License #: _______________ Date: _______________
Printed Name: ___________________________ Firm or Title: ___________________________

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachment:
USGS
Department of Health's Safe Drinking Water, Wastewater, and Clean Water Branches
Hawaii Department of Water Supply
Tom Nance Water Resource Engineering
Mr. Thad Bond  
Kaupulehu Makai Venture  
P.O. Box 1119  
Kailua-Kona, HI 96745  

Dear Mr. Bond:

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s) that authorize well construction activities but excludes installation work for your permanent pump. As part of the Chairperson’s approval, the following special conditions were added and are part of your permit under Permit Condition 13:

**Special Conditions**

1. Attached for your information is a copy of the Department of Health’s (DOH) review comments. Please note DOH’s requirements related to discharge of effluent from well drilling and testing activities.

This permit **does not** authorize work for your permanent pump installation. Approval and issuance of your pump installation permit is contingent upon completed application and information provided to and accepted by Commission staff as required in the Well Construction & Pump Installation Standards (1/23/97) and any special conditions performed under this permit. However, a permanent pump may be installed prior to the permanent pump installation permit issuance in accordance with the Commission’s April 15, 1998 Declaratory Ruling No. DEC-ADM98-G5, which states that:

"Permanent pump installation for capacities between 0-70 gpm and where the proposed use is for private individual needs in non-ground-water management areas may be allowed prior to the final pump installation permit issuance. When required as a condition of the well construction permit, subsequent pumping tests shall validate the acceptability of the permanent pump. The permanent pump installed prior to final pump installation permit issuance is subject to removal if the testing shows that a smaller pump is required to reduce the potential of affecting neighboring wells and localized upconing at the applicant’s well."

If you qualify and wish to take advantage of this ruling, please include a written request to install the permanent pump prior to final pump installation permit issuance when you return to us your signed well construction permit.
Please sign and have the contractor sign both permit originals and return one for our files. Also, copies of the aquifer pump test worksheet and the well completion report form are enclosed for your use.

**IMPORTANT** - Drilling work shall not commence until a fully signed permit is returned to the Commission. Please provide all the information in this packet to your well drilling contractor. The permittee, well operator, and/or well owner are responsible for all conditions of the permit. This includes ensuring that the well construction contractor, or other party who constructs the well(s), submits a completed Part I of the Well Completion Report form (enclosed) within sixty (60) days after the well construction work is completed. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions starting from the permit approval date.

If you have any questions, please call Ryan Imata of the Commission staff at 587-0255 or toll-free at 974-4000 (Hawaii), 274-3141 (Kauai), 984-2400 (Maui), or 1-800-468-4644 (Lanai & Molokai), extension 70255.

Sincerely,

[Signature]

Peter T. Young
Chairperson

Enclosures

c: Tom Nance Water Resource Engineering
In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Kaupulehu Potable 5 Well (Well No. 4657-03) at Mauka of Hualalai Resort, Hawaii, TMK 7-2-003: 003, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

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11. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee, well operator, and/or well owner must follow the procedures set forth in §13-168-12(f) prior to any well sealing or plugging work.

12. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.

13. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: December 3, 2003
Expiration Date: December 3, 2005

PETER T. YOUNG, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the driller have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: __________________________ Date: __________________________
Printed Name: __________________________ Firm or Title: __________________________

Driller's Signature: __________________________ C-57 License #: __________________________ Date: __________________________
Printed Name: __________________________ Firm or Title: __________________________

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachment:

C:
USGS
Department of Healthy Safe Drinking Water, Wastewater, and Clean Water Branches
Hawaii Department of Water Supply
Tom Nance Water Resource Engineering
**COMMISSION ON WATER RESOURCE MANAGEMENT**

**ROUTE SLIP FOR PERMIT ISSUANCE**

**FROM:** RYAN  
**DATE:** 1/29/83  
**SUSPENSE DATE:**

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**WELL NUMBER:** 41657-03  
**WELL NAME:** Kampuleeh Pct 3

**ATTACHMENTS FOR WELL CONSTRUCTION PERMIT:**

- [COVER LETTER](#)
- [PERMIT (2x)](#)
- [COMMENTS: SDWB](#)
- [WWB](#)
- [CWB](#)
- [HEER](#)
- [LD](#)
- [HP](#)
- [PUMP TEST](#)
- [WCR I FORM](#)
- [WELL CHECK PRINTOUT](#)

**TO BE SENT TO APPLICANT**

**FOR OFFICE USE ONLY**

**ATTACHMENTS FOR PUMP INSTALLATION PERMIT:**

- [COVER LETTER](#)
- [PERMIT (2x)](#)
- [COMMENTS: SDWB](#)
- [WWB](#)
- [CWB](#)
- [HEER](#)
- [LD](#)
- [HP](#)
- [WCR II FORM](#)
- [WUR FORM](#)
- [GLENN'S WORKSHEET](#)

**TO BE SENT TO APPLICANT**

**FOR OFFICE USE ONLY**
Well No. 4657-03
Well Name Kaupulehu Potable 5
Applicant 0
Date of Review # whales
Reviewer RRI

SECTION 1: WELL LOCATION INFORMATION

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SECTION 2: WELL SECTION DATA (enter data in grey cells only)

| Elevation at top of casing | 1352 ft., m.s.l. |
| Ground Elevation           | 1350 ft., m.s.l. |
| Cement Grout               | 500 ft. |
| Rock Packing               | 0 ft. |
| Hole Diameter              | 23 in. |
| Total Depth                | 1410 ft. |
| Estimated Head             | 27 ft., m.s.l. |
| Calculated Aquifer Thickness | 287 ft. |
| County Water Supply (Y/N ?) | NO |
|                           |          |
| Solid Casing              |          |
| Material                  | Steel   |
| Designation               | ASTM A53 |
| Length                    | 1340 ft. |
| Diameter                  | 16 in.   |
| Wall Thickness             | 0.375 in. |
| Casing                    |          |
| Material                  | Steel   |
| Designation               | ASTM A53 |
| Length                    | 60 ft.   |
| Diameter                  | 16 in.   |
| Wall Thickness             | 0.3125 in. |
| Openings                  | 0 sq.in./l.f. |
| Open Hole                 |          |
| Length                    | 10 ft.   |
| Diameter                  | 14 in.   |

SECTION 3: CHECKLIST (values to check are shaded)

| Well Depth |          |          |
| Theoretical Thickness of Aquifer | 287 ft. | okay (refer to HWCPIS Section 2.2) |
| 1/4 Aquifer Thickness    | 71.75 ft. |
| Depth of Well below Sea Level | 60 ft. |
| Well Casing             |          |
| Minimum Wall Thickness  |          |
| Material                | Steel   |
| County or Non-County    | non-county |
| Minimum Thickness per standards | 0.375 in. |
| Wall Thickness Provided | 0.375 in. | okay (refer to HWCPIS Section 2.4 c) |
| Minimum Length of Solid Casing |          |
| 90% of ground to top of aquifer | 1209 ft. |
| Length of solid casing Provided | 1340 ft. | okay (refer to HWCPIS Section 2.4 d) |
| Casing Material         | ASTM A53 |
| Annular Space           |          |
| Calculated Depth of Grouting | 500 ft. |
| Depth of Grouting provided | 500 ft. | okay (refer to HWCPIS Section 2.6 c) |
| Thickness of Annular Space | 3.5 in. | okay (refer to HWCPIS Section 2.6 d) |
TO: Honorable Chiyome L. Fukino, M.D., Director  
Department of Health  
Attention: Harold Yee, Wastewater Branch  
William Wong, Safe Drinking Water Branch  
Dr. Keith Kawaoka, Hazardous Evaluation and Emergency Response  
Alec Wong, Clean Water Branch  

FROM: Peter T. Young, Chairperson  
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application  
Kaupulehu Potable 5 Well (Well No. 4657-03)

Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by December 1, 2003. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Ryan Imata of the Commission staff at 587-0255.

RESPONSE:

[ ] This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, Rules Relating to Potable Water Systems, §11-20-29.

[ ] This well does not qualify as a source serving a public water system (serves less than 25 people or more people at least 60 days per year or 15 service connections) and if the well water is used for drinking, the private owner should test for bacteriological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.

[ ] If the well is used to supply both potable and non-potable purposes in a single system, the user shall eliminate cross-connections and backflow connections by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable spigots with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.

[ ] It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water Regulations.

For the applicant's information, a source of possible wastewater contamination is not located near the proposed well site (information attached).

[ ] An NPDES permit is required.

[ ] Other relevant DOH rules/regulations, information, or recommendations are attached.

[ ] No comments/objections

Contact Person: Lori N. Kajiwara  
Phone: 586-4294  
Date: 12-2-2003

Signed: Lori N. Kajiwara  
Date: 12-2-2003
Facsimile Request and Cover Sheet

Wastewater Branch
919 Ala Moana Blvd. Room 309
Honolulu, Hawaii 96814-4920
(808) 586-4294 Fax (808) 586-4300

Date: 11/95/2003 Total Pages 1 + 1 map

For: Dane Hiromasa
Kona Health Center

From: Lori Kajiwara, Planning/Design Section
Email: lkajiwara@eha.health.state.hi.us

Subject: Request for Information

Do you have any IWS files or records for the following site:

(3) 1 - 2 - 003:003 Kaupulehu Potable Well #5
Mauka of Hualalai Resort

Please check all that apply:

[ ] sewered  [ ] no record  [X] cesspool  [ ] septic tank  [ ] aerobic unit
[ ] can be sewered

File # if applicable: 4085-2  # of Bedrooms 4085
Record Date: 4085-2 Clubhouse
Submit Date: 4085-3
Plan Approval Date: 4085-651 Comfort Stations
Inspection Date: 4085-652
System "Approval for Use" Date:

Other: 2-6P

Please fax site/plot plan if available. Thank you.
INSPECTION: 8/14/02

STEPHEN J. HERBERT, P.E.
74-6696 Pawai Pl, 8203, Kailua-Kona, Hi 96740
PH: (808) 329-6372 FAX: (808) 331-2748

AS-BUILT SITE PLAN
COMFORT STATION 2
NANEA GOLF COURSE

AS-1
INSPECTION: 8/14/02

AS-BUILT SITE PLAN
COMFORT STATION I
NANE'A GOLF COURSE

STEPHEN J. HERBERT, P.E.
74-5606 PAWAI PL #203, KAILUA-KONA, HI 96740
PH: (808) 329-8272  FAX: (808) 331-2744
November 5, 2003

TO: Honorable Chiyome L. Fukino, M.D., Director
   Department of Health
   Attention: Harold Yee, Wastewater Branch
   William Wong, Safe Drinking Water Branch
   Dr. Keith Kawakoa, Hazardous Evaluation and Emergency Response
   Alec Wong, Clean Water Branch

FROM: Peter T. Young, Chairperson
      Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
         Kaupulehu Potable 5 Well (Well No. 4657-03)

       Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

       We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by December 1, 2003. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

       Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Ryan Imata of the Commission staff at 587-0255.

RT:ss
Attachment(s)

RESPONSE:

X This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, Rules Relating to Potable Water Systems, §11-20-29.

[ ] This well does not qualify as a source serving a public water system (serves less than 25 people or more people at least 60 days per year or 15 service connections) and if the well water is used for drinking, the private owner should test for bacteriological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.

[ ] If the well is used to supply both potable and non-potable purposes in a single system, the user shall eliminate cross-connections and backflow connections by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable spigots with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.

[ ] It does not appear that this well will be used for competitive purposes and is not subject to Safe Drinking Water Regulations.

[ ] For the applicant's information, a source of possible wastewater contamination [] is not located near the proposed well site (information attached).

[ ] An NPDES permit is required.

[ ] Other relevant DOH rules/regulations, information, or recommendations are attached.

[ ] No comments/objections

Contact Person: Bill Wong
Phone: 586-4258
Date: Nov 24, 2003

Signed: Bill Wong
1. We believe there are no historic properties present because:
   a. intensive cultivation has altered the land
   b. residential development /urbanization has altered the land
   c. previous grubbing/grading has altered land
   d. an acceptable archaeological assessment or inventory survey found no historic properties
   e. other:

2. This project has already gone through the historic preservation review process.
   a. mitigation has been completed
   b. other:

   Thus, we believe that “no historic properties will be affected by this undertaking.

Signed Jeanne M. Knapp
Historic Preservation Division, Kona
Date 11-17-03
STATE OF HAWAI'I
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

November 5, 2003

TO: Honorable Chiyome L. Fuking, M.D., Director
Department of Health
Attention: Harold Yee, Wastewater Branch
William Wong, Safe Drinking Water Branch
Dr. Keith Kawakita, Hazardous Evaluation and Emergency Response
Alec Wong, Clean Water Branch

FROM: Peter T. Young, Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Kaupulehu Potable 5 Well (Well No. 4657-03)

Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by December 1, 2003. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Ryan Imata of the Commission staff at 587-0255.

R: ss
Attachment(s)

RESPONSE:

1. This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 28, Rules Relating to Potable Water Systems, §11-20-08.

2. This well does not qualify as a source serving a public water system (serves less than 25 people and/or less than 60 days per year or 15 service connections) and if the well water is used for drinking, the private owner should test for bacteriological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.

3. If the well is used to supply both potable and non-potable purposes in a single system, the user shall eliminate cross-connections and backflow connections by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable spigots with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.

4. It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water Regulations.

5. For the applicant's information, a source of possible wastewater contamination is located near the proposed well site (information attached).

6. An HPDES permit is required.

7. Other relevant DOH rules/regulations, information, or recommendations are attached.

8. No comments/objections

Contact Person: Dr. Keith Kawakita
Phone: 586-4249

Signed: Date: Nov 12 2003

Rat to: Commission on Water Resources Mgt. 587-0219
The Department of Health, Clean Water Branch has the following comments:

1. For Well-Drilling Activities

Any discharge to State waters of treated process wastewater effluent associated with well drilling activities is regulated by Hawaii Administrative Rules, Title 11, Chapter 55, Appendix I, effective September 22, 1997. Treated process wastewater effluent covered by this general permit includes well drilling slurries, lubricating fluids wastewaters, and well purge wastewaters. This general permit does not cover well pump testing. The applicable Notice of Intent Forms and filing fee shall be submitted at least thirty (30) days before the start of discharge to the Department of Health, Clean Water Branch at 919 Ala Moana Boulevard, Room 301, Honolulu, Hawaii 96814-4920 or P.O. Box 3378, Honolulu, Hawaii 96801-3378. Inquiries may be directed to the Clean Water Branch at (808) 586-4309 or by fax at (808) 586-4352.

2. For Well Pump Testing

The discharger shall take all measures necessary to prevent the discharge of pollutants from entering State waters. Such measures shall include, if necessary, containment of the initial discharge until the discharge is essentially free of pollutants. If the discharge is entering a stream or river bed, best management practices shall be implemented to prevent the discharge from disturbing the clarity of the receiving water. If the discharge is entering a storm drain, the discharger must obtain written permission from the owner of that storm drain prior to discharge. Furthermore, best management practices shall be implemented to prevent the discharge from collecting sediments and other pollutants prior to entering the storm drain.

JS/cr
November 5, 2003

TO: Honorable Chiyome L. Fukino, M.D., Director
   Department of Health
   Attention: Harold Yee, Wastewater Branch
   William Wong, Safe Drinking Water Branch
   Dr. Keith Kawakami, Hazardous Evaluation and Emergency Response
   Alec Wong, Clean Water Branch

FROM: Dr. Peter T. Young, Chairperson
   Commission on Water Resources Management

SUBJECT: Well Construction/Pump Installation Permit Application
   Kaupulehu Potable 5 Well (Well No. 4657-03)

Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by December 1, 2003. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Ryan Imata of the Commission staff at 587-0253.

R:ss
   Attachment(s)

RESPONSE:

[1] This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 30, Rules Relating to Potable Water Systems, §11-20-03.

[1] This well does not qualify as a source serving a public water system (serves less than 25 people or more people at least 60 days per year or 15 service connections) and if the well water is used for drinking, the private owner should test for microbiological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.

[1] If the well is used to supply both potable and non-potable purposes in a single system, the user shall eliminate cross-connections and backflow connections by physically separating potable and non-potable systems by air gap or an approved backflow preventer, and by clearly labeling all non-potable outlets with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.

[1] It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water Regulations.

[1] For the applicant's information, a source of possible wastewater contamination [ ] is [ ] is not located near the proposed well site (information attached).

[1] An NPDES permit is required.

[1] Other relevant DOH rules/regulations, information, or recommendations are attached.

[1] No comments/objections

Contact Person: Alec Wong
Phone: 586-4309
Date: 11/2/03

Signed: Alec Wong
November 5, 2003

TO: Dede Mamiya, Administrator
Land Division

FROM: Ernest Y.W. Lau, Deputy Director
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Kaupulehu Potable 5 Well (Well No. 4657-03)

Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. **Please respond by returning this cover memo form by December 1, 2003.** If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Ryan Imata of the Commission staff at 587-0255.

Rt:ss
Attachment(s)

RESPONSE:

[ ] A water lease/permit is required of this applicant and an application for such will be requested by our division.

\[ \times \] A water lease/permit is **not** required of this applicant.

[ ] A water lease/permit has been obtained by the applicant through lease no. 

\[ \times \] This well project [ ] requires \[ \times \] does **not** require a CDUP. If a CDUP is required it [ ] has [ ] has **not** been approved and [ ] is [ ] is **not** currently active.

[ ] Other relevant Land Division rules/regulations, information, or recommendations are attached.

[ ] No objections

\[ \times \] Other comments: Original source of private title is Land Commission Award 7715: 10.

Contact Person: Gary Martin Phone: 587-0421

Signed: Gary Martin Date: NOV 10 2003
November 5, 2003

Mr. Thad Bond
Kaupulehu Makai Venture
P.O. Box 1119
Kailua-Kona, HI 96745

Dear Mr. Bond:

Well Construction/Pump Installation Permit Application for Well No. 4657-03

We acknowledge receipt, on October 23, 2003, of your completed Well Construction/Pump Installation permit application and filing fee for the Kaupulehu Potable 5 Well (Well No. 4657-03). You can expect your application to be processed within ninety (90) days from this date.

For your information, the process of constructing a well is normally regulated and permitted in two (2) steps. First, a well construction permit is issued for drilling and testing purposes only. Based upon information provided by you through a Well Completion Report Part 1 (Well Construction), a pump installation permit (upon completed application) may then be issued to authorize pump work. If a pump is installed then a Well Completion Report Part 2 (Pump Installation) is required.

If you have any questions about your permit application, please contact Ryan Imata of the Commission staff at 587-0255 or toll-free at 974-4000 (Hawaii), 274-3141 (Kauai), 984-2400 (Maui), or 1-800-468-4644 (Lanai & Molokai), extension 70255.

Sincerely,

[Signature]
ERNEST Y.W. LAU
Deputy Director

Rt: ss

c: Tom Nance
TRANSMITTED FOR YOUR REVIEW AND COMMENT IS A COPY OF THE CAPTIONED WELL CONSTRUCTION/PUMP INSTALLATION PERMIT APPLICATION.

WE WOULD APPRECIATE YOUR COMMENTS ON THE CAPTIONED APPLICATION FOR ANY CONFLICTS OR INCONSISTENCIES WITH THE PROGRAMS, PLANS, AND OBJECTIVES SPECIFIC TO YOUR DEPARTMENT. PLEASE RESPOND BY RETURNING THIS COVER MEMO FORM BY DECEMBER 1, 2003. IF WE DO NOT RECEIVE COMMENTS OR A REQUEST FOR ADDITIONAL REVIEW TIME BY THIS DATE, WE WILL ASSUME THAT YOU HAVE NO COMMENTS.

PLEASE FIND THE ATTACHED MAPS TO LOCATE THE PROPOSED WELL. IF YOU HAVE ANY QUESTIONS ABOUT THIS PERMIT APPLICATION, REQUEST ADDITIONAL INFORMATION, OR REQUEST ADDITIONAL REVIEW TIME, PLEASE CONTACT RYAN IMATA OF THE COMMISSION STAFF AT 587-0255.

RESPONSE:

[ ] This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, Rules Relating to Potable Water Systems, §11-20-29.

[ ] This well does not qualify as a source serving a public water system (serves less than 25 people or more people at least 60 days per year or 15 service connections) and if the well water is used for drinking, the private owner should test for bacteriological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.

[ ] If the well is used to supply both potable and non-potable purposes in a single system, the user shall eliminate cross-connections and backflow connections by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable spigots with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.

[ ] It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water Regulations.

[ ] For the applicant’s information, a source of possible wastewater contamination [ ] is [ ] is not located near the proposed well site (information attached).

[ ] An NPDES permit is required.

[ ] Other relevant DOH rules/regulations, information, or recommendations are attached.

[ ] No comments/objections

Contact Person: _______________________________ Phone: __________________

Signed: ___________________________ Date: ________________
November 5, 2003

TO: Dede Mamiya, Administrator  
Land Division

FROM: Ernest Y.W. Lau, Deputy Director  
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application  
Kaupulehu Potable 5 Well (Well No. 4657-03)

Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. **Please respond by returning this cover memo form by December 1, 2003.** If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Ryan Imata of the Commission staff at 587-0255.

**RESPONSE:**

[ ] A water lease/permit is required of this applicant and an application for such will be requested by our division.

[ ] A water lease/permit is not required of this applicant.

[ ] A water lease/permit has been obtained by the applicant through lease no. ____________________________.

[ ] This well project [ ] requires [ ] does not require a CDUP. If a CDUP is required it [ ] has [ ] has not been approved and [ ] is [ ] is not currently active.

[ ] Other relevant Land Division rules/regulations, information, or recommendations are attached.

[ ] No objections

[ ] Other comments:

Contact Person: ____________________________ Phone: ________________

Signed: ____________________________ Date: ________________
November 5, 2003

TO: Holly McEldowney, Acting Administrator
Historic Preservation

FROM: Ernest Y.W. Lau, Deputy Director
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Kaupulehu Potable 5 Well (Well No. 4657-03)

Transmitted for your review and comment is a copy of the captioned Well Construction/Pump Installation permit application.

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. Please respond by returning this cover memo form by December 1, 2003. If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Ryan Imata of the Commission staff at 587-0255.

RESPONSE:

[ ] There may be areas in the vicinity of the well site that contain subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal.

[ ] Other relevant Historic Preservation rules/regulations, information, or recommendations are attached.

[ ] No objections

[ ] Other comments:

Contact Person: ____________________ Phone: ____________

Signed: _____________________________ Date: ______________
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**TOTAL** $125.00

**REMARKS:**

LINE (1) Kaplan Well
LINE (2) Well No. 4657-03
LINE (3) Well Nos. 4459-03, 04, & 05
LINE (4)
LINE (5)
LINE (6)
LINE (7)
LINE (8)
LINE (9)
LINE (10)
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This information has been supplied by third parties and has not been independently verified by Hawaii Information Service and is, therefore, not guaranteed.
COMMISSION ON WATER RESOURCE MANAGEMENT
ROUTE SLIP FOR NEW APPLICATIONS


DATE: 24-Oct-03


INIT: [Signature]

FOR: 3 Approval
4 Signature
5 Information

PLEASE:
1 Review & Comment
2 Take Action
3 See Me
5 Type Draft acknow letter
2 Type Final, label new file folder
5 Xerox copies

INCOMPLETE ACTION DATES:

DATE ACTION

WELL NUMBER: W22
WELL NAME: Kaupulehu Potable 5

ATTACHMENTS FOR APPLICATION PROCESSING - Both applicant & staff generated
1 TRANS. LETTER
2 CWRM MAP
3 APPL. FORM (3X)
4 USGS MAPS (3X)
5 TAX MAPS (3X)
6 PARCEL OWNER VERIF. MLS PRINTOUT
7 CONTRACTOR VERIF. DCCA LICENSE SCREEN PRINTOUT
8 ALL INFO FILLED IN
9 BACKGROUND CHECK

FOLDER:
☑ MADE NEW FILE FOLDER, ATTACHED
☐ FILE FOLDER ALREADY MADE, IN FILE CABINET

INCOMPLETE ACTION DATES:

DATE ACTION
### Well Background Check

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</table>
Mr. Ernest Y.W. Lau
Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Lau:

Well Construction and Pump Installation Permit Application
for Kaupulehu Potable Well No. 5 - North Kona, Hawaii

Attached is the Well Construction and Pump Installation Permit application and filing fee for Kaupulehu Potable Well No. 5. This application is for the 5th potable well for the private water system which supplies the Hualalai Resort in North Kona. Feel free to call me or Thad Bond (808-325-8400) if you have questions.

Sincerely,

Tom Nance

cc: Thad Bond

Attachments
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
APPLICATION FOR PERMIT

Instructions: Please print in ink or type and send completed application with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. Application must be accompanied by (a) a property tax map, showing well location referenced to established property boundaries and (b) a property tax map, showing well location referenced to established property boundaries. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 587-0225. For further information and updates to this application form, visit http://www.state.hi.us/dlnr/cwrm.

APPLICANT INFORMATION: (Fill out all three, if applicable, and place a check next to the primary contact)

1. (a) [Box] WELL OWNER: Kaupulehu Makai Venture
   Contact Person: Thad Bond
   Mailing Address: P. O. Box 1119
   Kailua-Kona, Hawaii 96745
   Phone: 808-325-8400
   Fax: 808-325-8401
   E-mail: 

   (b) [Box] LAND OWNER: Kamehameha Schools
   Contact Person: Rick Robinson
   Mailing Address: 567 S. King Street - Suite 200
   Honolulu, Hawaii 96813
   Phone: 808-322-5300
   Fax: 
   E-mail: 

   (c) [Box] CONTRACTOR: To Be Competitively Bid
   Mailing Address: 
   Phone: 
   Fax: 
   E-mail: 
   UIC: 

   (circle one: C-57, C-67a, or A)

2. WELL NAME: Kaupulehu Potable Well No. 5
   Island: Hawaii
   Address Mauka of Hualalai Resort
   Tax Map Key: Zone: 7 Sec: 2 Plat: 03 Parcel: 3
   Attach: (a) portion of a 7.5-Minute Series USGS topographic map (scale 1:24,000) with well location labeled and include the name of the quad map
   (b) a property tax map, showing well location referenced to established property boundaries

3. PROPOSED WORK: (check all that apply)
   - Construct New Well
   - Install New Pump*
   - Modify Existing Well*
   - Modify Pump*
   - Abandon/Seal*

   *State Well No.: __________________________ (if unknown, please call Commission at 587-0225)

4. CONSTRUCTION:
   - Drilled
   - Dug
   - Shaft
   - Tunnel
   Is this well part of a battery of wells? Yes No (Please describe)

5. PROPOSED PUMPING RATE: 450 gallons per minute

6. PROPOSED USE: (check all that apply)
   - Municipal (including hotels, stores, etc.)
   - Domestic (individual, noncommercial water system)
   - Industrial
   - Irrigation (crop)
   - Military
   - Other (explain): 
   No. of Acres: 

7. (a) PROPOSED AMOUNT OF WITHDRAWAL: Up to 648,000 gallons per day
   (b) METHOD OF FLOW MEASUREMENT:
   - Flowmeter
   - Open-pipe
   - Weir
   - Orifice
   - Other (explain): 

8. LEGAL REQUIREMENTS: If required, these permits must be obtained before the Commission can legally issue a permit.
   Conservation District Use Permit (CDUP): To find out if a CDUP is necessary, call DLNR Land Division at 587-0414
   - Not Required
   - Required, if approved

   Environmental Impact Statement (EIS) or Environmental Assessment (EA): To determine if an EIS or EA are necessary, call OEQC at 586-4185
   - Not Required
   - Required, if published in OEQC bulletin

   Special Management Area Permit (SMAP): To determine if an SMAP is necessary on Oahu, call 527-5374; on Maui, 961-8288; for Maui county, call 241-6677.
   - Not Required
   - Required, if approved

9. ARCHAEOLOGICAL REQUIREMENTS: To find out if an archaeological work is required, call DLNR Historic Preservation
   - Not Required
   - Required, if approved

10. REMARKS, EXPLANATIONS: This application is for the 5th potable well for the private water system which supplies the Hualalai Resort in North Kona, Hawaii.

NOTE: Signing below indicates the signatories understand and swear that the information provided on this application is accurate and true to the best of their knowledge. Further, the signatories understand that approval of this application attaches the following standard conditions: 1) the proposed work is to be completed within two (2) years of the approval date; 2) the contractor shall submit to the Commission a well completion/abandonment report within 60 days after the completion date of the permitted work; 3) monthly water use data shall be submitted to the Commission; 4) such approval shall not constitute a determination of correlative water rights and shall not guarantee the pump capacity or future use up to the permitted pump capacity; 5) in the event that the application is not completed correctly, any permit may be suspended until the item is brought into compliance, and any work done while the permit is in suspension may result in fines of up to $1000/day.

Well Owner: Kaupulehu Makai Venture
Signature: 
Date: 10-8-03

Land Owner: Kamehameha Schools
Signature: 
Date: 10-8-03

Contractor: To Be Competitively Bid
Signature: 
Date: 

For official use only
Latitide: 
Longitude: 
Aquifer System No.: 
State Well No.: 

WCPA Form 71/7/03
10. PROPOSED WELL SECTION (Please attach schematic if different from diagram provided below)

For non-salt water Basal Wells - bottom elevation of well should not be deeper than 1/4 of aquifer thickness or, Bottom Elevation of Well Limit = \[
\text{Water Elevation - \left( \frac{1}{4} \times \text{Water Level Elevation} \right) = \text{Minimum Elevation}}
\]

Example: Estimated + 2 ft Water Level Elev. - Bottom Elevation of Well Limit = \[
\left( \frac{1}{4} \times 16 \right) = 4 \text{ ft.}
\]

Solid Casing Material:
- Carbon Steel: compliant with (check one or more): ⮞ ANSI/AWWA C200 ⮞ API Spec. 5L ⮞ ASTM A53 ⮞ ASTM A139
- And compliant with (check one or more): ⮞ ASTM A242 ⮞ Type E ⮞ Type S ⮞ Grade B ⮞ Other
- Stainless Steel: (check one): ⮞ ASTM A409 (production welds) ⮞ ASTM A312 (mirror welds)
- ABS Plastic conforming to ASTM F480 and ASTM D1527: (check one)  ⮞ Schedule 40  ⮞ Schedule 80
- PVC Plastic conforming to ASTM F480 and (ASTM D1785 or ASTM D2241): (check one):  ⮞ Schedule 40  ⮞ Schedule 80  ⮞ Schedule 120
- Thermoset Plastic: (check one)  ⮞ Filament Wound Resin Pipe conforming to ASTM D2996  ⮞ Centrufugally Cast Resin Pipe conforming to ASTM D2997  ⮞ Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517  ⮞ Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950  ⮞ PTFE Fluorocarbon Tubing conforming to ASTM D3298  ⮞ FEP Fluorocarbon Tubing conforming to ASTM D3296

Open Casing Material:
- Carbon Steel: compliant with (check one or more): ⮞ ANSI/AWWA C200 ⮞ API Spec. 5L ⮞ ASTM A53 ⮞ ASTM A139
- And compliant with (check one or more): ⮞ ASTM A242 ⮞ Type E ⮞ Type S ⮞ Grade B ⮞ Other
- Stainless Steel: (check one): ⮞ ASTM A409 (production welds) ⮞ ASTM A312 (mirror welds)
- ABS Plastic conforming to ASTM F480 and ASTM D1527: (check one)  ⮞ Schedule 40  ⮞ Schedule 80
- PVC Plastic conforming to ASTM F480 and (ASTM D1785 or ASTM D2241): (check one):  ⮞ Schedule 40  ⮞ Schedule 80  ⮞ Schedule 120
- Thermoset Plastic: (check one)  ⮞ Filament Wound Resin Pipe conforming to ASTM D2996  ⮞ Centrufugally Cast Resin Pipe conforming to ASTM D2997  ⮞ Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517  ⮞ Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950  ⮞ PTFE Fluorocarbon Tubing conforming to ASTM D3298  ⮞ FEP Fluorocarbon Tubing conforming to ASTM D3296

* The approximate elevation must be referenced to mean sea level (msl) at the time of application filing. Final elevations of well components shall be submitted in the Well Completion/Well Abandonment reports and referenced to a benchmark which has been established by a surveyor licensed by the State.

Total Length: ___ ft.
Nominal Diameter: ___ in.
Wall Thickness: ___ in.
Bottom Elevation: ___ ft., msl*

Solid Casing: (check one): ⮞ Perforated ⮞ Screen
Total Length: ___ ft.
Nominal Diameter: ___ in.
Wall Thickness: ___ in.
Bottom Elevation: ___ ft., msl*

Open Casing: ⮞ Perforated ⮞ Screen
Total Length: ___ ft.
Nominal Diameter: ___ in.
Wall Thickness: ___ in.
Bottom Elevation: ___ ft., msl*

TOTAL Depth: ___ ft.
Nominal Diameter: ___ in.
Wall Thickness: ___ in.
Bottom Elevation: ___ ft., msl*

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