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Mr. Leroy Sharber  
Kauhale Makai  
938 S. Kihei Road  
Kihei, HI 96753  

Dear Mr. Sharber:

Well Completion Report for Well No. 4527-14

We received your Well Completion Report Part II for the Kihei-Kauhale Makai (Well No. 4527-14) on June 22, 2001 and acknowledge that it is complete.

If you have any questions, please contact Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400, extension 70251.

Sincerely,

LINNEL T. NISHIOKA  
Deputy Director

LN:ky
MEMO and ROUTE SLIP

WCR 2 Check for Well No. 4527-14 (survey to regulation memo)

1. **Pump Tests Check** (special condition of PIP? Yes/No) Glenn Bauer (initial if yes)
   - 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
     - analysis attached
   - Stream Surface Water Impacted:

2. **Pump Installation Check** Mitch Ohye (initial)
   - Yes
   - No
   - If no, describe deficiency
   - data complete
   - followed WCPI Stds
   - well database updated

3. Charley/Lenore/Ryan _______ (initial) take action based on above analysis

4. Roy _______ (initial) check
   - *No signed PIP yet... see attached, w/ Roy's initial*

5. Susan Subia _______ (initial) finalize

6. Linnel _______ (initial) signature

7. Charley/Lenore/Ryan File
Return Receipt Fax Memo

For: Charlie Ice

Charlie. Enclosed are the following items:

✓ Signed Pump Installation Permit for Kihei-Kauhale Makai
  Well # 4527-14

Please confirm receipt by checking off the enclosed items and faxing a copy of this memo to me at 808-572-0925.

From: Mike Robertson

Thank you:
  Mike Robertson
Wailani Drilling Company

Mike Robertson 655 Kulike Road Haiku, Maui, Hawaii 96708
Ph. 808/572-2673 Fax 572-0925 Cellular 264 7079

Return Receipt Fax Memo

For: Charlie Ice

Charlie. Enclosed are the following items:

✔ Signed Well Completion Part II for Kihei-Kauhale Makai
Well # 4527-14 and Final Well drawing with pump

Please confirm receipt by checking off the enclosed items and faxing a copy of this memo to me at 808-572-0925.

From: Mike Robertson

Thank you:

Mike Robertson
State of Hawaii  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  
WELL COMPLETION REPORT - PART II  
Pump Installation  

Instructions: Please print in ink or type and send completed report (with attachments, if applicable) to the  
Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96815. The Commission  
may not accept Incomplete reports. This form shall be submitted within 60 days of the completion of work.  
For assistance, please contact the Hawaii Well Construction and Pump Installation Standards or call the  
Regulation Branch at 808-586-5226. For updates to this form or additional information, please visit our website at  
http://www.state.hi.us/dlnr/cwm/  

1. State Well No.: 4827-14  
2. Well Name: Kilahale-Wahia  
3. Address: 938 South Waialae Road  
4. Tax Map Key: 3-9-175  
5. Pump Installation Company: LAHAINA DRILLING  
6. Date Pump Installed: 6/15/01 (FINAL) See attached drawing  
7. Pump Type, Make: SUBMERSIBLE  
   Serial No.: GRUNDFOS, 132150-7  
   Rated Capacity: 150 gpm  
   Motor Type, H.P., Voltage, rpm: FRANKLIN, 15HP, 200V, 3450 RPM  
   Type of flow meter: TURBINE, which measures in gallons/min.  
8. Flow measurement:  
   e Flowmeter  
   Manufacturer MICROMETER  
   e Weir  
   e Open Pipe  
   e Orifice  
   e Other, explain below  
9. Other remarks/comments:  
   Attach schematic  
10. Permits (print):   
   Signature  
   Date  
11. Pump Installation Contractor (print): MIKE ROBERTSON  
   C-57/C-57a/A Lic. No.: 20115  
   Signature  
   Date  

WCR2 Form 83-00
Bench Mark 9.42 Ft. Top of Slab
Measures 3ft x 6ft x 4 in

#6 layflat submersible pump cable to 15 hp controller

3 in. Flanged Flow Meter

1/2 in. thick custom fabricated Well Seal

Total Well Depth 86 ft.
initial chlorides 2518 ppm

Pump tested at 100 gpm for 24 hours with maximum drawdown of 5.73 ft.

*Note: not drawn to scale
MEMO and ROUTE SLIP

WCR 1 Check for Well No. 4527-14 (survey to regulation memo)

1. **Pump Tests Check**
   - Glenn Bauer A (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 ☐
     - easier using step - drawdown data

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

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

2. **Construction Check**
   - Mitch Ohye W (initial) 5/22/01
   - Yes ☐ No ☐ If no, describe deficiency
     
     data complete ☐
     - followed WCPI Stds ☐
     - well database updated ☐

3. Charley/Lenore/Ryan (initial) take action based on above analysis

   ATTACHMENTS FOR PUMP INSTALLATION PERMIT:
   - 1 COVER LETTER ☐
   - 2 PERMIT (2x) ☐
   - 3 DOH COMMENTS ☐
   - 4 LAND DRY COMMENTS ☐
   - 5 WCR FORM ☐
   - 6 WUR FORM ☐

   not necessary – only WCP.

   To be sent to applicant

4. Roy (initial) check
5. Kathy (initial) finalize
6. Lippel (initial) signature
7. Charley/Lenore/Ryan File
Mr. Leroy Sharber  
Kauhale Makai AAO  
938 South Kihei Road  
Kihei, Maui, HI 96753  

Dear Mr. Sharber:  

Pump Installation Permit  
Kihei-Kauhale Makai Well (Well No. 4527-14)  

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.  

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 $1000 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.  

Finally, this letter is notice that we have accepted your Well Completion Report - Part I as complete as of May 3, 2001.  

If you have any questions, please call Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400 extension 70251.  

Aloha,  

GILBERT S. COLOMA-AGARAN  
Chairperson  

Enclosure  
c. Wailani Drilling Company
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 Kihei-Kauhale Makai Well (Well No. 4527-14) at 938 South Kihei Road, Maui, TMK 3-9-4:75, 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 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 100 gpm 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 an annual 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. The this permit is also subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97). 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 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.

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

Date of Approval: May 3, 2001
Expiration Date: May 3, 2003
GILBERT S. COLOMA-AGARAN, 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 $1000 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
Maui Department of Water Supply
Wailani Drilling Company

c:
Well Name: Kauhale-Makai Well No. 4527-14
Date of Test: March 7, 2001
Date of Analysis: 16-May-01

Alternative way for determining T from step-drawdown data (Mink, per. comm)
Q = ft^3/d
s = ft.

Set up two equations:

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

\[ Q_2 = 9625 \quad s_2 = 2.05 \]
\[ Q_1 = 19250 \quad s_1 = 4.48 \]

Well Depth below sea level = 78.6 ft
Radius of well (ft) = 0.5 ft

\[ n = s_1 - \frac{(Q_1/Q_2)s_2}{Q_1(Q_1-Q_2)} = 2.1E-09 \]
\[ j = \frac{s}{Q} - nQ = 0.000193 \]

Laminar flow equation:
\[ s = jQ = 3.72 \quad 83.04\% \quad \text{Head loss due to laminar flow} \]

Thiem Eq.
\[ T = \frac{1}{2\pi j}\ln\left(\frac{re}{r}\right) \]
\[ re = \text{Well Depth BSL} \times 1.6 = 125.76 \]
Therefore:
\[ T = \frac{1}{2\pi j}\ln\left(\frac{re}{r}\right) = 4552 \text{ ft}^2/\text{d} \]
The applicant concurs with your comment with regards to the water demand for the project. It is our understanding that the County of Maui Department of Water Supply (DWS) is currently issuing water meters to those ready to receive service. Further, DWS is moving forward on projects to increase the water resources that supply the South Maui area such as treatment of surface water and utilizing water from the Hamakua poko wells in East Maui to remedy the water situation in Central and South Maui.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
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</thead>
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<tr>
<td>1. Sub.</td>
<td>State Well No.: 94-271-V1</td>
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<tr>
<td>2. Address</td>
<td>Kailakale-Makani</td>
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<tr>
<td>3. Drilling Company</td>
<td>Mauilani, D.L. Mauilani</td>
</tr>
<tr>
<td>4. Type of Pump</td>
<td>DF, ROOSY</td>
</tr>
<tr>
<td>5. Date Well Construction (after licensed/geminded completion)</td>
<td>3/5/01</td>
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<tr>
<td>6. Initial water level encountered?</td>
<td>No</td>
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<td>7. Step-Drop Basin Test completed?</td>
<td>No</td>
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<tr>
<td>8. Constant Rate Aquifer Test completed?</td>
<td>No</td>
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<tr>
<td>9. Water level in feet</td>
<td>1.69</td>
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<tr>
<td>10. Chloride</td>
<td>257.8</td>
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<tr>
<td>11. Temperature</td>
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<tr>
<td>12. Date and time of measurement:</td>
<td>3/12/01</td>
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<tr>
<td>13. Date and time of sampling:</td>
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</table>

**Additional Information:**

- **Remarks:** See wells section on the other side of this sheet.
- **Licensing Delineation:** Chain of title and surveyor's stamped elevation report.
- **Signatures:**
  - **Surveyor (grain):** J.C. Papadakos
  - **Permittee (grain):**
  - **Llicenee (grain):** J.J. Papadakos
  - **Preparer (grain):**

**Date:** 3/12/01
# STEP-DRAWDOWN PUMP TEST DATA

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

<table>
<thead>
<tr>
<th>Pumped Well No.</th>
<th>Observation well no.</th>
<th>Distance between Obs. &amp; Pumped Well</th>
<th>Reference pt. for depth to water</th>
<th>Static Water Level @ start of test</th>
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</thead>
<tbody>
<tr>
<td>4527-14</td>
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<td>180 ft. gpm</td>
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Pumped Well Name: Kauaie-Makai

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<tr>
<th>Target Q</th>
<th>100 gpm</th>
</tr>
</thead>
</table>

Water level measurements by: steel tape, pressure transducer, airline

**START TEST** Date: 3/1/01  Time of day: 8:00 AM  Ref. PT. Top of SLAB

<table>
<thead>
<tr>
<th>Flow Meter Reading Start: 0 gals</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Suggested Elapsed time (min)</th>
<th>Actual Elapsed Time (min)</th>
<th>Depth to water (nearest 0.1 ft)</th>
<th>Drawdown S (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (at least 3 steps) (gpm)</th>
<th>EC (µhos)</th>
<th>Cl⁻ (mg/l)</th>
<th>Temp. °F or °C</th>
<th>Data in this table is for: Pumped Well</th>
<th>Observation Well</th>
<th>Remarks</th>
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</table>
## CONSTANT-RATE PUMP TEST DATA

Pumped Well No. **KWAHAE-MAKAI**

<table>
<thead>
<tr>
<th>Target Q</th>
<th>Observation well no.</th>
<th>Distance between Obs. &amp; Pumped Well</th>
<th>Reference pt. for depth to water</th>
<th>Static Water Level @ start of test</th>
</tr>
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<tbody>
<tr>
<td>100</td>
<td><strong>N/A</strong></td>
<td><strong>N/A</strong></td>
<td>9.42 ft. msl (SLAB)</td>
<td><strong>7.73</strong> ft. msl (SLAB)</td>
</tr>
</tbody>
</table>

Water level measurements by: □ steel tape  □ pressure transducer  □ airline

START TEST Date: **3/7/01**  Time of day: **12:00 PM**  ▲ Ref. PT TOP OF SLAB

Flow Meter Reading Start: **6760 gals**

<table>
<thead>
<tr>
<th>Suggested elapsed time (min)</th>
<th>Actual elapsed time (min)</th>
<th>Depth to water (ft)</th>
<th>Drawdown (ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (μmhos)</th>
<th>Cl- (mg/l)</th>
<th>Temp. or C°</th>
<th>Remarks</th>
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**WELL NUMBER:** 4527-LY

**DRILLER'S LOG** *(7/26/99 DL Form)*

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<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>
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**Remarks:**
Mr. Leroy Sharber  
Kauhale Makai AOAO  
938 South Kihei Road  
Kihei, Maui, HI 96753  

Dear Mr. Sharber:  

Well Construction Permit  
Kihei-Kauhale Makai (Well No. 4527-14)  

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.  

2. The well casing thickness shall meet requirements in Hawaii Well Construction and Pump Installation Standards.  

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 Charley Ice of the Commission staff at 587-70251 or toll-free at 974-4000 (Hawaii), 274-3141 (Kauai), 984-2400 (Maui), or 1-800-468-4644 (Lanai & Molokai) extension 770251.  

Aloha,  

GILBERT S. COLOMA-AGARAN  
Chairperson  

Enclosures  
c. Wailani Drilling Company
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 Kīhei-Kauhale Makai (Well No. 4527-14) at Waiohuli, Kīhei, Maui, TMK 3-9-4:75, 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 1-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 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 correlitive 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 §13-168-12(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 4, 2000
Expiration Date: December 4, 2002

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.

Timothy E. Johns, Chairperson
Commission on Water Resource Management

Attachment

C: USGS
Department of Health/Safe Drinking Water, Wastewater, and Clean Water Branches
Maui Department of Water Supply
Wailani Drilling Company
**SECTION 1: WELL LOCATION INFORMATION**

<table>
<thead>
<tr>
<th>Island</th>
<th>MAUI</th>
</tr>
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<tbody>
<tr>
<td>Aquifer System</td>
<td>CENTRAL</td>
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<tr>
<td>Aquifer Sector</td>
<td>KAMAOLE</td>
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**Proposed Use**

<table>
<thead>
<tr>
<th>Proposed Withdrawal</th>
<th>System Sustainable Yield</th>
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<tbody>
<tr>
<td></td>
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</tbody>
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**Proposed Use**

| Irrigation | 65000 |

**SECTION 2: WELL SECTION DATA**

(enter data in grey cells only)

<table>
<thead>
<tr>
<th>Elevation at top of casing</th>
<th>ft., m.s.1.</th>
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<tbody>
<tr>
<td>Ground Elevation</td>
<td>ft., m.s.1.</td>
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<tr>
<td>Cement Grout</td>
<td>ft.</td>
</tr>
<tr>
<td>Rock Packing</td>
<td>in.</td>
</tr>
<tr>
<td>Hole Diameter</td>
<td>ft.</td>
</tr>
<tr>
<td>Total Depth</td>
<td>ft.</td>
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<tr>
<td>Estimated Head</td>
<td>ft., m.s.1.</td>
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<tr>
<td>Calculated Aquifer Thickness</td>
<td>41 ft.</td>
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**Solid Casing**

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<th>Designation</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

**Casing**

| Material  | Designation | Length | Diameter | Wall Thickness | Openings | Open Hole |
|-----------|-------------|--------|----------|----------------|----------|
|           |             |        |          |                |          |

| County Water Supply (Y/N ?) |  |

**SECTION 3: CHECKLIST**

(values to check are shaded)

**Well Depth**

| Theoretical Thickness of Aquifer | 41 ft. |
| 1/4 Aquifer Thickness | 10.25 ft. |
| Depth of Well below Sea Level | 10 ft. okay (refer to HWCPIS Section 2.2) |

**Well Casing**

<table>
<thead>
<tr>
<th>Minimum Wall Thickness</th>
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<tr>
<td>Material</td>
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<td>County or Non-County</td>
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<tr>
<td>Minimum Thickness per standards</td>
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<tr>
<td>Wall Thickness Provided</td>
</tr>
<tr>
<td>Minimum Length of Solid Casing</td>
</tr>
<tr>
<td>90% of ground to top of aquifer</td>
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<tr>
<td>Casing Material</td>
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<tr>
<td>Annular Space</td>
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<td>Depth of Grouting</td>
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<tr>
<td>Depth of Grouting provided</td>
</tr>
<tr>
<td>Thickness of Annular Space</td>
</tr>
</tbody>
</table>
## Commission on Water Resource Management
**Route Slip for Permit Issuance**

**From:** Charley Bauer, G. Ching, F. Fujii, N. Hardy, R. Higa, D. Hirano, E. Ice, C. Imata, R. Jinna, R. Kunimura, I.


**Date:** 

**Suspense Date:**

---

**PLEASE:**

- **Review & Comment**
- **Signature**
- **Information**
- **Type Draft**
- **Type Final**
- **File**
- **Xerox**

---

**WELL NUMBER** 4527-14  
**WELL NAME** Kiihi - Kauhale Makai

*CHECKBOXES:

- [ ] WELL CONSTRUCTION
- [ ] PUMP INSTALLATION

### Attachments for Well Construction Permit:

1. COVER LETTER  
2. PERMIT (2x)  
3. PUMP TEST  
4. DOH COMMENTS  
5. LAND DIV. COMMENTS  
6. WCR FORM  

**TO BE SENT TO APPLICANT**

**FOR OFFICE USE ONLY**

### Attachments for Pump Installation Permit:

1. COVER LETTER  
2. PERMIT (2x)  
3. DOH COMMENTS  
4. LAND DIV. COMMENTS  
5. WCR FORM  
6. WUR FORM  

**TO BE SENT TO APPLICANT**

**FOR OFFICE USE ONLY**
TO: Honorable Bruce S. Anderson, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch 
William Wong, Safe Drinking Water Branch 

FROM: Timothy E. Johns, Chairperson 
Commission on Water Resource Management 

SUBJECT: Well Construction/Pump Installation Permit Application  
Kauhale Makai (Well No. 4527-14) 

Transmitted for your review and comment is a copy of the captioned well 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 November 30, 2000. 

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 Charley Ice of the Commission staff at 587-70251. 

CI:ky 
Attachment(s) 

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). 

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

No comments/objections 

Contact Person: LOVI N. KAJIWARA  
Phone: 586-4294 

Signed: LOVI N. KAJIWARA  
Date: 12-1-2000
TO: 
HONORABLE BRUCE S. ANDERSON, DIRECTOR
DEPARTMENT OF HEALTH

ATTENTION: DENNIS TULANG, WASTEWATER BRANCH
WILLIAM WONG, SAFE DRINKING WATER BRANCH

FROM: TIMOTHY E. JOHNS, CHAIRPERSON
COMMISSION ON WATER RESOURCE MANAGEMENT

SUBJECT: WELL CONSTRUCTION/PUMP INSTALLATION PERMIT APPLICATION
KAUHOLE MAKAI (WELL NO. 4527:HI)

Transmitted for your review and comment is a copy of the captioned well 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 November 30, 2000.

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 Charley Ice of the Commission staff at 587-70251.

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, §11-32-26.

[ ] This well does not qualify as a source serving a public water system (serves less than 25 people at more people at least 60 days per year or 15 service connections) and is not required to be approved prior to its use for drinking purposes. However, if future use is planned, the 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-connection 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).

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

[ ] No comments/objections

Contact Person: MELVIN J. HAMANO Phone: 586-4268

Signed: MELVIN J. HAMANO Date: 12/01/00
TO: Dean Y. Uchida, Administrator  
Land Division
FROM: Linnel T. Nishioka, Deputy Director  
Commission on Water Resource Management
SUBJECT: Well Construction/Pump Installation Permit Application  
Kauhale Makai (Well No. 4527-14)

Transmitted for your review and comment is a copy of the captioned well application which includes a request for a pump installation permit.

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 November 30, 2000.

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 Charley Ice of the Commission staff at 587-70251.

RESPONSE:

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

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

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

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

[ ] No objections

XX Other comments: Original source of private title is Land Patent Grant No. 9681 issued on April 8, 1929.

Contact Person: Gary Martin  
Phone: 587-0421

Signed: Gary Martin  
Date: 11/29/2000
<table>
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<th>DOCUMENT NO.</th>
<th>SRC/ OBJ</th>
<th>COST CTR</th>
<th>PROJECT</th>
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<th>ACT</th>
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<td>D 326 C 1026 0752</td>
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<td>Wailani Drilling, Inc. (Check #3291)</td>
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</tbody>
</table>

**TOTAL** $25.00

**REMARKS:**

LINE (1) Kihei-Kauhale Makai (Well No. 4527-1)
Mr. Donald A. Wright  
Leroy Sharber  
Kauhale Makai AOAO  
938 South Kihei Road  
Kihei, Maui, HI 96753  

Dear Mr. Wright:  

Well Construction/Pump Installation Permit Application for Well No. 4527-14  

We acknowledge receipt, on November 3, 2000, of your completed Well Construction/Pump Installation permit application and filing fee for the Kauhale Makai (Well No. 4527-14). 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.  

Please be aware that your proposed driller may have unfinished business with the Water Commission, which would have to be resolved before we can accept his signature on a permit, and no work shall commence unless a copy of the permit has been fully signed by both permittee and driller.  

If you have any questions about your permit application, please contact Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400, extension 70251.  

Sincerely,  

LINNEL T. NISHIOKA  
Deputy Director  

Cl:ky  
c: Wailani Drilling Company
TO: Honorable Bruce S. Anderson, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch  

FROM: Timothy E. Johns, Chairperson  
Commission on Water Resource Management  

SUBJECT: Well Construction/Pump Installation Permit Application  
Kauhale Makai (Well No. 4527-14)  

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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 Charley Ice of the Commission staff at 587-70251.  

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.  

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[ ] 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).  

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

[ ] No comments/objections  

Contact Person: _________________________ Phone: _________________________  

Signed: _________________________ Date: _________________________
TO:       Dean Y. Uchida, Administrator  
          Land Division
FROM:  Linnel T. Nishioka, Deputy Director  
       Commission on Water Resource Management
SUBJECT:  Well Construction/Pump Installation Permit Application  
          Kauhale Makai (Well No. 4527-14)

Transmitted for your review and comment is a copy of the captioned well application which includes a request for a pump installation permit.

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 November 30, 2000.**

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 Charley Ice of the Commission staff at 587-70251.

Ct:ky
Attachment(s)

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. ____________________________

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

[ ]    No objections

[ ]    Other comments:

Contact Person: ____________________________   Phone: ____________________________

Signed: ____________________________   Date: ____________________________
**Commission on Water Resource Management**

**Route Slip for New Applications**

From: **Charley**  
Date: 24-Oct-00  
Suspense Date:  

**To:**  
- Bauer, G.  
- Ching, F.  
- Fuji, N.  
- Hardy, R.  
- Higa, D.  
- Hirano, E.  
- Ice, C.  
- Imata, R.  
- Jinna, R.  
- Kunimura, I.  

**From:**  
- Lhum, A.  
- Nakama, L.  
- Nakano, D.  
- Nishioka, L.  
- Ohye, M.  
- Sakoda, E.  
- Suba, S.  
- Swanson, S.  
- Uyeno, D.  
- Yoda, K.  

**PLEASE:**  
- See Me  
- Review & Comment  
- Take Action  
- Type Draft acknow letter  
- Type Final, label new file folder  
- File  
- Xerox copies  

---

**Well Number:** 4527  
**Well Name:** Kihei-Kauhale Makai  

- **WELL CONSTRUCTION**  
- **PUMP INSTALLATION**  
- **BOTH**  

**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.  
8. ALL INFO FILLED IN  
9. BACKGROUND CHECK  

**Folder:**  
- New folder, plus driller?  
- Made new file folder, attached  
- File folder already made, in file cabinet  

**INCOMPLETE ACTION DATES:**  
- DATE  
- ACTION  

---

For driller concerns:  
- Getting well in violation for Mike and putting need to follow-up.  
- Signed well materials en route.  
- SW-19.02 & 4327-06 better be signed before he starts.  
- 5620-02 & 4532-01 not, needs to sign.
<table>
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<tr>
<th>Approved Well No.</th>
<th>Well Name</th>
<th>Applicant</th>
<th>Driller</th>
<th>Type</th>
<th>Well Construction Issued</th>
<th>Signed</th>
<th>WCR1 Accept</th>
<th>Pump Installation Issued</th>
<th>Signed</th>
<th>WCR2 Accept</th>
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<td>Manawai-Papanui</td>
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<td>C-20115</td>
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<td>Driller</td>
<td>Type</td>
<td>Issued</td>
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</table>

**Notes:**
- Mike filed application, but not Mike's project. I don't see a signed copy.
- Applicat call, await survey.
- Mike filed application, but not Mike's project. I don't see a signed copy.
- Applicat call, await survey.
- Mike filed application, but not Mike's project. I don't see a signed copy.
- Mike filed application, but not Mike's project. I don't see a signed copy.
- Mike filed application, but not Mike's project. I don't see a signed copy.

*May 1/18/2000: Better not be willing*
<table>
<thead>
<tr>
<th>Approved Well No.</th>
<th>Well Name</th>
<th>Applicant</th>
<th>Driller</th>
<th>Type</th>
<th>Issued</th>
<th>Signed</th>
<th>WCR1 Accept</th>
<th>Issued</th>
<th>Signed</th>
<th>WCR2 Accept</th>
</tr>
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<tbody>
<tr>
<td>5/2/2000</td>
<td>Palai Ulmer</td>
<td>Kurt Ulmer</td>
<td>C-20115</td>
<td>BOTH</td>
<td>5/28/2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>8/14/2000</td>
<td>Pulehu</td>
<td>Kula Meadows, LLC</td>
<td>C-20115</td>
<td>WELL</td>
<td>8/14/2000</td>
<td>8/14/2000</td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
APPLICATION INFORMATION: (Fill out all three, if applicable, and place a check next to the primary contact)

1. (a) WELL OWNER: Kaahale Makai
   Mailing Address: 938 S. Kiihe Rd, Kiihe, HI 96753
   Fax: 879-6881
   Contact Person: Lecoy Shuster
   Phone: 879-8888

2. LAND OWNER: Same as above
   Mailing Address: 938 S. Kiihe Rd, Kiihe, HI 96753
   Fax: 879-6881

3. CONTRACTOR: Waideni Drillers Inc
   Mailing Address: 655 Kulike Rd, Haiku, HI 96708
   Fax: 572-0925

WELL & PUMP INFORMATION: (Please fill in the diagram on the back of this form.)

2. WELL NAME: Kiihe - Kaahale MAKAI
   Island: Maui
   Address 938 S. Kiihe Rd
   Tax Map Key: 253 970501
   \R 0 A: ___________________ (circle one: C-57, C-57a, or A)

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
   \[\] Dog
   \[\] Shaft
   \[\] Tunnel
   Is this well part of a battery of wells? \[\] Yes \[\] No
   (Please describe)

5. PROPOSED PUMP INFORMATION: Rated Pump Capacity: 140 gallons per minute
   Pump Type (check one):
   \[\] Deep Well Turbine
   \[\] Rotary
   \[\] Propeler
   \[\] Submersible
   \[\] Rotary-Displacement
   \[\] Reciprocating
   \[\] Centrifugal
   \[\] Rotary-Gear
   \[\] Impulse
   Electric: 1

6. PROPOSED USE: (check all that apply)
   \[\] Municipal (including hotels, stores, etc.)
   \[\] Industrial
   \[\] Domestic (individual, noncommercial water system)
   \[\] No. of Dwelling Units:
   \[\] Irrigation (crop)
   \[\] Military
   \[\] Other (explain): _____________ 
   \[\] No. of Acres:
   _____________
   \[\] Underground
   \[\] Other: ___________________

7. (a) PROPOSED AMOUNT OF WITHDRAWAL:
   65000 gallons per day
   (b) METHOD OF FLOW MEASUREMENT:
   \[\] Flowmeter
   \[\] Open-pipe
   \[\] Weir
   \[\] Orifice
   \[\] Other (explain): ___________________

OTHER IMPORTANT INFORMATION:

8. LEGAL REQUIREMENTS:
   \[\] CDUP
   \[\] SMAP
   \[\] EIS
   \[\] EA
   \[\] None
   \[\] Other (explain): ___________________

9. REMARKS, EXPLANATIONS:
   This area will probably be sand on top of rock layer which will contain more limited water. My intention will be to case off sand and top the sand to lower elevation water below rock ledge. (if more space is needed, please attach additional sheet)

I 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 common water rights and shall not guarantee the pump capacity or future use or the permitted pump capacity.

Well Owner: Donald A. Wright
Landowner: Donald A. Wright
Contractor: Mike Rife
Signature: 10/2/00
Date: 10/2/00

For Official Use Only:
Latitude: _____________
Longitude: _____________
AQUIFER SYSTEM No.: _____________
STATE WELL No.: 4574-14
10. PROPOSED WELL SECTION (Please attach schematic if different from diagram provided below)

- 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.

For non-salt water Basalt Wells - bottom elevation of well should not be deeper than 1/4 of aquifer thickness or,

Bottom Elevation of Well Limit = \( \frac{W\text{ater Elevation} - 4.5 \text{ ft.}}{4} \) - 18.5 ft.

Example: Estimated = 2 ft. Water Level Elev. \( \Rightarrow \) Bottom Elevation of Well Limit = \( \frac{2 - 4.5 \text{ ft.}}{4} \) = 18.5 ft.

**lud Casing Material:**
- bon Steel: compliant with (check one or more): ANS/AWWA C200, API Spec. 5L, ASTM A53, ASTM A139
- Stainless Steel: compliant with (check one or more): ASTM A242, Type E, Type S, Grade B, Other

- Plastic: conforming to ASTM F480 and ASTM D1527: (check one)
  - Schedule 40
  - Schedule 80

- Resin: conforming to ASTM F480 and (ASTM D1785 or ASTM D2241): (check one)
  - Schedule 40
  - Schedule 80
  - Schedule 120

**Solid Plastic:**
- Centrifugally Cast Resin Pipe conforming to ASTM D2996
- 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

**n Casing Material:**
- on Steel: compliant with (check one or more): ANS/AWWA C200, API Spec. 5L, ASTM A53, ASTM A139
- Stainless Steel: compliant with (check one or more): ASTM A242, Type E, Type S, Grade B, Other

- Plastic: conforming to ASTM F480 and ASTM D1527: (check one)
  - Schedule 40
  - Schedule 80

- Resin: conforming to ASTM F480 and (ASTM D1785 or ASTM D2241): (check one)
  - Schedule 40
  - Schedule 80
  - Schedule 120

- Resin: conforming to ASTM A409 (monitor wells)
- Resin: conforming to ASTM A312 (monitor wells)
- FEP Fluorocarbon Tubing conforming to ASTM D3296
- Centrifugally Cast Resin Pipe conforming to ASTM D2996
- 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