Location of Proposed Storage Facility
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**SECTION 1: WELL LOCATION INFORMATION**

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**SECTION 2: WELL SECTION DATA**

(enter data in grey cells only)

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<th>Elevation at top of casing</th>
<th>Solid Casing</th>
<th>Ground Elevation</th>
<th>Earth Grout</th>
<th>Rock Packing</th>
<th>Hole Diameter</th>
<th>Total Depth</th>
<th>Calculated Aquifer Thickness</th>
<th>County Water Supply (Y/N ?)</th>
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<td>ft., m.s.l.</td>
<td>PVC</td>
<td>ft., m.s.l.</td>
<td>ft.</td>
<td>ft.</td>
<td>in.</td>
<td>ft.</td>
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**SECTION 3: CHECKLIST**

/values to check are shaded/

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<th>Well Depth</th>
<th>Theoretical Thickness of Aquifer</th>
<th>20.5 ft.</th>
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<td>Depth of Well below Sea Level</td>
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(disregard if the well is not basal)

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<th>Well Casing</th>
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<td>Wall Thickness Provided</td>
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<td>Minimum Length of Solid Casing</td>
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<td>Length of solid casing Provided</td>
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<p>| Annular Space               | Calculated Depth of Grouting | 48.65 ft. |
|-----------------------------| Depth of Grouting provided  | 60 ft.    | okay | refer to HWCPIS Section 2.6 c |
| Thickness of Annular Space  | 3.25 in.                 | okay | refer to HWCPIS Section 2.6 d |</p>
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TO: 

FROM: Charley Ice

Transmitting final letter accepting the wcE 2 as complete, and the water use reporting forms.

I see no reporting in the file, although we should have seen two annual reports by now.

Date: 28 June 04
Form KeaLaniIrr.doc (3/99)
### ANNUAL GROUND WATER DELIVERY REPORT

**Fairmont Kea Lani**

4100 Wailea Alanui Drive

Kihei, Maui

State Well No. 4026-13  Well Name Kea Lani Irrigation Well  Year

**INSTRUCTIONS:** Please TYPE OR PRINT CLEARLY. Complete this form to report total monthly ground water use and other information from each of your well sources. Mail to: Commission on Water Resource Management, P.O. Box 621, Honolulu HI 96810. For assistance, please call (808) 587-0264.

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* Use of water code:

- **AQ**: Aquaculture
- **A**: Agriculture non-irrigation use (livestock, cane wash, etc.)
- **P**: Power consumption
- **C**: Commercial
- **I**: Industrial-manufacturing, construction, etc.
- **T**: Total time of operation
- **D**: Domestic
- **H**: Hydroelectric power generation - indicate KWH of power generated
- **X**: Comparison with past data
- **IF**: Irrigation - Drip
- **F**: Fuel power generation - cooling
- **D**: Irrigation - Furrow
- **IS**: Irrigation - Sprinkle
- **X**: Other means - (indicate method)

**Other comments or additional information:**

Submitted by (print) ____________________________

Signature ____________________________ Date ____________ Phone No. ____________

Form KeaLaniIrr.doc (3/99)
December 23, 2002

Mr. Todd Sherman
The Fairmont Kea Lani
4100 Wailea Alanui Drive
Kihei, HI 96753

Dear Mr. Sherman:

Well Completion Report for Well No. 4026-13

We received your Well Completion Report Part II for the Kea Lani Irrigation Well (Well No. 4026-13) on December 8, 2002 and acknowledge that it is complete. This completes the permitting process for this well.

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

Cc: Wailani Drilling, Inc.
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 ______ ft.
     - analysis attached
   - Stream Surface Water Impacted:
     - If yes, identify most probable stream

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

5. Subia (initial) finalize

6. Linnel (initial) signature

7. Charley/Lenore/Ryan File
Charley,

Enclosed are the following items:

- Signed Pump Installation Permit for Kea Lani Irrigation Well (No.4026-13)
- Well Completion Report Part II for Kea Lani Irrigation Well (No.4026-13)
- Signed Pump Installation Permit for Maliko-Moretti Well 1 (No.5620-05)
- Well Completion Report Part II for Maliko-Moretti Well 1 (No.5620-05)

Hardcopies of these forms will be mailed.

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

I will be off Island until Thursday the 12th. But possibly available by cell phone 264 7079.

Sincerely,

Mike Robertson

Wailani Drilling Company
Lic.#C20115
Mike Robertson 655 Kulike Road Haiku, Maui, Hawaii 96708
Ph.808/572-2673 Fax 572-0925 Cellular 264 7079

12/8/2002
# 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 521, Honolulu, Hawaii 96809. The Commission may not accept incomplete reports. This form shall be submitted within 60 days of the completion of work. For assistance, please consult the Hawaii Well Construction and Pump Installation Standards or call the Regulation Branch at 587-0226. For updates to this form or additional information, please visit our website at http://www.state.hi.us/dlnr/wrm/.

---

<table>
<thead>
<tr>
<th>Column</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. State Well No.</td>
<td>4026-13</td>
</tr>
<tr>
<td>2. Address</td>
<td>4100 Wailea Alanui Drive</td>
</tr>
<tr>
<td>3. Pump Installation Company</td>
<td>Wailani Drilling Inc.</td>
</tr>
<tr>
<td>4. Date Pump Installed</td>
<td>8/13/02</td>
</tr>
<tr>
<td>5. PERMANENT PUMP INFORMATION</td>
<td></td>
</tr>
<tr>
<td>Pump Type, Make, Serial No.</td>
<td>Grundfos 230 S100-6</td>
</tr>
<tr>
<td>Rated Capacity</td>
<td>230 gpm at head of: 250 ft.</td>
</tr>
<tr>
<td>Motor Type, H.P., Voltage, rpm</td>
<td>Franklin 20 HP</td>
</tr>
<tr>
<td>Type of flow meter</td>
<td>Turbine which measures in gallon</td>
</tr>
<tr>
<td>Model Number</td>
<td>HP3</td>
</tr>
<tr>
<td>Serial Number</td>
<td></td>
</tr>
<tr>
<td>Pump type (check one):</td>
<td></td>
</tr>
<tr>
<td>☐ Deep Well Turbine</td>
<td>☐ Rotary</td>
</tr>
<tr>
<td>☑ Submersible</td>
<td>☐ Rotary-Displacement</td>
</tr>
<tr>
<td>☐ Centrifugal</td>
<td>☐ Reciprocating</td>
</tr>
<tr>
<td>☐ Rotary-Gear</td>
<td>☐ Impulse</td>
</tr>
<tr>
<td>6. Method of flow measurement:</td>
<td></td>
</tr>
<tr>
<td>☐ Flowmeter</td>
<td>Manufacturer: Neptunia Make: HP Turbine Size 3&quot;</td>
</tr>
<tr>
<td>☐ Weir</td>
<td>☐ Open Pipe</td>
</tr>
<tr>
<td>☐ Orifice</td>
<td>☐ Other, explain below</td>
</tr>
<tr>
<td>☐ Other, explain below</td>
<td></td>
</tr>
<tr>
<td>*attach schematic</td>
<td></td>
</tr>
<tr>
<td>7. Fill in the as-built section on the other side of this sheet.</td>
<td></td>
</tr>
<tr>
<td>8. Attach photograph of well and concrete pad clearly showing benchmark on concrete pad.</td>
<td></td>
</tr>
<tr>
<td>9. Other remarks/comments:</td>
<td></td>
</tr>
</tbody>
</table>

---

**Pump Installation Contractor (print)** Mike Robertson (C-57C-57a/A Lic. No. 30115)

**Signature** Mike Robertson  
**Date** 12/4/02

**Permittee (print)** E. Farias

**Signature** E. Farias  
**Date** 12/4/02
Bench mark elevation
surveyed to nearest 0.01 ft. = 84.30 ft. mean sea level

9. AS-BUILT PUMP SECTION (Please attach as-built if different from diagram provided below)

Elevation of top of chase tube
84.50 ft. mean sea level

Pump intake depth = 90.38 ft.
(referenced to bench mark)

Chase tube depth = 88 ft.
(referenced to bench mark)

If airline installed,
bottom of airline elevation = NA ft. mean sea level
PUMP INSTALLATION PERMIT
Kea Lani Irrigation Well, Well No. 4026-13

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

In accordance with the 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 Kea Lani Irrigation Well (Well No. 4026-13) at 4100 Wailea Alanui Drive, Maui, TMK 2-1-23; 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 250 gpm rated capacity at 250 ft. of head, 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 submitted approved by the Commission are incorporated into this permit by reference. 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 at least 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, injury, 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 transmittal letter are incorporated herein by reference.

Date of Approval: October 30, 2002
Expiration Date: October 30, 2004

Commission on Water Resource Management

GILBERT S. COLOMA-AGARAN, Chairperson

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: [Signature]
Printed Name: [Name]
Date: 12/4/03

Installer's Signature: [Signature]
Printed Name: [Name]
Date: 12/4/03

Firm or Title: Wailani Drilling, Inc.

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, Inc.
November 20, 2002

Mr. Todd Sherman
The Fairmont Kea Lani
4100 Wailea Alanui Drive
Kihei, HI 96753

Dear Mr. Sherman:

Pump Installation Permit
Kea Lani Irrigation Well (Well No. 4026-13)

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. 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 your water use report form is enclosed for your use.

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.

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, Inc.
PUMP INSTALLATION PERMIT
Kea Lani Irrigation Well, Well No. 4026-13

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 Kea Lani Irrigation Well (Well No. 4026-13) at 4100 Wailea Alanui Drive, Maui, TMK 2-1-23:3, 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 250 gpm rated capacity at 250 ft. of head, 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 (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 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 transmittal letter are incorporated herein by reference.

Date of Approval: October 30, 2002
Expiration Date: October 30, 2004

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
Maul Department of Water Supply
Wailani Drilling, Inc.
WELL NUMBER: 4024-13
WELL NAME: Kea Lani Irrigation

ATTACHMENTS FOR WELL CONSTRUCTION PERMIT:
1 COVER LETTER
2 PERMIT (2x)
3 SDWB
4 WWB
5 CWB
6 HEER
7 LD
8 HP
9 PUMP TEST
10 WCR I FORM

TO BE SENT TO APPLICANT

FOR OFFICE USE ONLY

ATTACHMENTS FOR PUMP INSTALLATION PERMIT:
1 COVER LETTER
2 PERMIT (2x)
3 SDWB
4 WWB
5 CWB
6 HEER
7 LD
8 HP
9 WCR II FORM
10 WUR FORM

FOR OFFICE USE ONLY
MEMO and ROUTE SLIP

WCR 1 Check for Well No. 4026-13 (survey to regulation memo)

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 _________ ft.
     - analysis attached

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

2. **Construction Check** Mitch Ohye (initial) 11-15-02

   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 DIV. COMMENTS
   - 5 WCR 2 FORM
   - 6 WUR FORM
   - 7 USGS MAP
   - 8 PARCEL CHECK
   - 9 DATABASE PRINTOUT
   - 10 GLENN’S WORKSHEET
   - 11 WELL CHECK PRINT

   not necessary – only WCP.

   To be sent to applicant

4. Roy ________ (initial) check

5. Subia ________ (initial) finalize

6. Linnel ________ (initial) signature

7. Charley/Lenore/Ryan File
Well Name: Kea Lani Irrigation Well No. 4026-13
Date of Test: 13-Aug-02
Date of Analysis: 1-Nov-02

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

\[ Q = \text{ft}^3/\text{d} \]

\[ Q_1 \text{ (gpm)} = 250 = 48125 \text{ ft}^3/\text{d} \]
\[ s = \text{ft.} \]
\[ Q_2 \text{ (gpm)} = 100 = 19250 \text{ ft}^3/\text{d} \]

Set up two equations:

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

\[ Q_2 = 19250 \]
\[ s_2 = 0.23 \]
\[ Q_1 = 48125 \]
\[ s_1 = 0.86 \]

Well Depth below sea level = 11
Radius of well (ft) = 0.25 = r

\[ n = s_1 - (Q_1/Q_2)s_2/Q_1(Q_1-Q_2) = 2.05E-10 \]
\[ j = s/Q - nQ = 0.000008 \]

\[ s = jQ = 0.385 \quad 44.77\% \text{ Head loss due to laminar flow} \]

Thiem Eq.

\[ T = \frac{1}{2\pi j} (\ln r_e/r) \]

\[ r_e = \text{Well Depth BSL} \times 1.6 = 17.6 \]

Therefore:

\[ T = \frac{1}{2\pi j} (\ln r_e/r) = 84634 \text{ ft}^2/\text{d} \]
Return Receipt Fax Memo

Charley, enclosed are the following items:

*Hardcopy of previously faxed paperwork for Nahiku Betsill Well
✓ Signed Well Completion Report Part 1 for Nahiku Betsill Well
✓ Step Test and constant rate test results for Nahiku Betsill Well
✓ Elevation certificate from surveyor for Nahiku Betsill Well
✓ Drillers log for Nahiku Betsill Well
✓ Letter of request for Nahiku Betsill Well

*Hardcopy of previously faxed paperwork for Kea Lani Irrigation Well
✓ Signed Well Completion Report Part 1 for Kea Lani Irrigation Well
✓ Step Test and constant rate test results for Kea Lani Irrigation Well
✓ Elevation certificate from surveyor for Kea Lani Irrigation Well
✓ Drillers log for Kea Lani Irrigation Well
✓ Elevation certificate from surveyor for Eric Golting
*Resubmitting Corrected:
✓ Well Completion Report Part I for Eric Golting

✓ Signed Well Completion Report Part 1 for Ka ele ku-Smith
✓ Constant rate test results for Ka ele ku-Smith
✓ Elevation certificate from surveyor for Ka ele ku-Smith
✓ Driller’s log for Ka ele ku-Smith

✓ Signed Well Completion Report Part I for Spreckelsville-Wark
✓ Constant rate test results for Spreckelsville-Wark
✓ Elevation certificate from surveyor for Spreckelsville-Wark
✓ Driller’s log for Spreckelsville-Wark

✓ Signed Pump Installation Permit for Honopou-Bathelt
✓ Signed Well Completion Report Part II for Honopou-Bathelt

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

Sincerely,

Ann Robertson
State of Hawaii  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  
WELL COMPLETION REPORT - PART I  
Well Construction

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 821, Honolulu, Hawaii 96809. The Commission may not accept incomplete reports. This form shall be submitted within 60 days of the completion of work. For assistance, please consult the Hawaii Well Construction and Pump Installation Standards or call the Regulation Branch at 808-586-0223. For updates to this form or additional information, please visit our website at http://www.state.hi.us/dlnr/wrm/

1. State Well No.: 4026-13  
   Well Name: Kae Lani Irrigation Well  
   Island: Maui

2. Address: 4100 Waihea Alanui Drive, Kihei  
   Tax Map Key: 2-1-23:3

3. Drilling Company: Wai Lani Drilling Inc

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

5. Date Well Construction (drilled, cased, grouted) completed: 8/5/02

   Fill out attached Driller's Log

   In addition to the driller's log, if a geologic log was prepared, please submit with this form.

6. Was the subject well cored? ☐ Yes ☑ No

7. Initial water-level encountered: 90 ft. below ground  
   Date and time of measurement: 7/22/02

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

   Attach Step-Drawdown Test form (12/17/97 SDPTD Form)

9. Constant Rate Aquifer Test completed?  ☐ No ☑ Yes

   Attach Constant Rate Aquifer Test form (12/17/97 CRPTD Form)

Parameters prior to pump test:

10. Water-level: 9 ft. above msl  
    Date and time of measurement: 8/13/02

11. Chloride: 520 ppm  
    Date and time of sampling: 8/13/02

12. Temperature: 69 °F  
    Date and time of measurement: 8/13/02

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 250 gpm at a head of 2.50 ft.

17. Remarks:

Licensed Driller (print)  Mike Robertson  C-57 Lic. No. 20115

Signature  Mike Robertson  Date 10/22/02

Permittee (print)  E. Farnes

Signature  E. Farnes  Date 10/22/02

WCR1 Form 9/12/01 Page 1 of 4
13. AS-BUILT WORK SECTION (Please attach as-built if different from diagram provided below)

Elevation at top of casing: 84.5 ft, msl

To nearest 0.01 ft.

Minimum of 2' Radius & 4" Thick Concrete Pad

Ground Elevation: 83.2 ft, msl

Solid Casing: (≥ 90% x (Ground Elev.-Water Level Elev))

Length: 85.4 ft
Nominal Diameter: 6 in.
Wall Thickness: 2.5 in.
Bottom Elevation: ~1 ft, msl

Open Casing: □ Perforated □ Screen

Length: 9 ft
Nominal Diameter: 6 in.
Wall Thickness: 2.5 in.
Bottom Elevation: ~9 ft, msl

Open Hole:
Length: NA
Diameter: NA
Bottom Elevation: NA

*msl = mean sea level

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 wells) □ ASTM A312 (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

And compliant with (check one or more): □ ASTM A242 □ Type E □ Type S □ Grade B □ Other

Stainless Steel: (check one): □ ASTM A409 (production wells) □ ASTM A312 (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
## DRILLER'S LOG

**WELL NUMBER:** 4026-13

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<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, etc.</th>
<th>Dates</th>
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<td>90 to 94</td>
<td>Hard Blue Rock</td>
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**Remarks:**

...
Performance Curves * 230 GPM

FLOW RANGE: 160 - 320 GPM
OUTLET SIZE: 3" NPT

3450 RPM
3525 RPM

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.
4" MOTOR STANDARD, 7.5 HP/3450 RPM
6" MOTOR STANDARD, 10-60 HP/3450 RPM.
8" MOTOR STANDARD, 75 HP/3525 RPM.
* Alternate motor sizes available.

Performance conforms to ISO 9906 Annex A.
© 8 ft. min. submergence.

SPECIFIC
4" MOTOR
6" MOTOR
8" MOTOR
* Alternate
Chankx,

The pump site looks OK. Drawdown is fine and the well depth below SL is good. There was an increase in chloride from 520 to 660 ppm, but it may have stabilized for the last 10 hrs of the test.

Kevin
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<th>TO:</th>
<th>INIT.</th>
<th>TO:</th>
<th>INIT:</th>
<th>FOR:</th>
<th>PLEASE:</th>
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<td>NAKAMA, L.</td>
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Return Receipt Fax Memo

For: Charlie Ice

Charlie. Enclosed are the following items:

- Pump Test results for Kea Lani Well # 4026-13
- Pump Curve of installed pump model # 230S200-6
- Info (on this sheet) of well construction

Total Depth of well is 94 ft. with no open hole
Solid casing is installed from 84.40 msl to -1 ft. msl
Concrete grout is from 84.40 msl to 16 ft. msl
Slotted casing is installed from -1 ft. msl to -9 ft. msl
Pump intake is set at -6 ft. msl on 3 in galvanized pipe

Please process as per variance.
WCR-1 and 2 to follow

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

Thank you:  
Mike Robertson
Table 2 (CRPTD Form 12/17/97)

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<th>Pumped Well No.</th>
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<td>Kea Lani Irrigation</td>
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<td>Target Q</td>
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<td>Observation well no.</td>
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<td>Static Water Level @ start of test</td>
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Water level measurements by: [ ] steel tape  [ ] pressure transducer  [ ] airline

START TEST Date: 8/18/92  Time of day: 2:00 PM

Flow Meter Reading Start: 15636 gals

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<th>Actual elapsed time t (min)</th>
<th>Depth to water (nearest 0.1 ft)</th>
<th>Drawdown (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (mg/l)</th>
<th>Cl- (mg/l)</th>
<th>Temp. °F (\text{or}^\circ) C</th>
<th>Remarks</th>
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Data in this table is for: \(\checkmark\) Pumped Well  \(\square\) Observation Well

Remarks: Start Test
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<th>Suggested elapsed time (min)</th>
<th>Actual elapsed time (min)</th>
<th>Depth to water (nearest 0.1 ft)</th>
<th>Drawdown (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate (gpm)</th>
<th>EC (mhos)</th>
<th>Cl⁻ (mg/l)</th>
<th>Temp. F or °C</th>
<th>Remarks</th>
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</table>

1 Chloride sampling required
2 Use same ending drawdown figure as start for recovery

Table 2 (CRPTD Form 12/17/97)

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

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: 375,986 gals
Table 2 (CRPTD Form 12/17/97)

<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>Recovery Drawdowns (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (μhos)</th>
<th>Cl⁻ (mg/l)</th>
<th>Temp. °F or °C</th>
<th>Remarks</th>
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END TEST  Date: **8/14/02**  Time of day: **2:46 PM**

ADDITIONAL REMARKS:

Person in charge of pump test (print): **Mike Robertson**

Signature: **Mike Robertson**

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.
Table 1 (SDPTD Form 12/17/97)

STEP-DRAWDOWN PUMP TEST DATA
(not required for wells producing < 100,000 gpd or 70 gpm)

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Observation well no.
Distance between Obs. & Pumped Well: **NA** ft.
Reference pt. for depth to water: **84.50** ft. msl
Static Water Level @ start of test: **9** ft. msl

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

START TEST Date: **8/13/02** Time of day: **9:00 AM**

Flow Meter Reading Start: **582** gals

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<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 (umhos)</th>
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Data in this table is for:
☑ Pumped Well
☐ Observation Well

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- Step 2 begin?
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<td>Drawdown S (unadjusted to nearest 0.1 ft)</td>
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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: 15636 gals

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
### Table 1 (SDPTD Form 12/17/97)

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**END TEST**  Date: **8/12/02**  Time of day:  **11:30 AM**

**ADDITIONAL REMARKS:**

Person in charge of pump test (print): **Mike Roberts**

Signature: **Mike Roberts**

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.
Performance Curves 230 GPM

FLOW RANGE: 160-320 GPM
OUTLET SIZE: 3" NPT

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

4" MOTOR STANDARD, 7.5 HP/3450 RPM
6" MOTOR STANDARD, 10-60 HP/3450 RPM.
8" MOTOR STANDARD, 75 HP/3525 RPM.

* Alternate motor sizes available.

Performance conforms to ISO 9906 Annex A.
© 8 ft. min. submergence.

SPECIFIC
4" MOTOR
6" MOTOR
8" MOTOR
* Alternate
# CONSTANT-RATE PUMP TEST DATA

**Pumped Well No.** 4026-13  
**Pumped Well Name** Kea Lani Irrigation  
**Target Q** 250 gpm  
**Observation well no.**  
**Distance between Obs. & Pumped Well** N/A ft  
**Reference pt. for depth to water** 24.5 ft. msl  
**Static Water Level @ start of test** 9 ft. msl  
**Water level measurements by:**  
- [ ] Steel tape  
- [ ] Pressure transducer  
- [ ] Airline  

**Flow Meter Reading Start:** 15626 gallons

## Observation well

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<th>Actual elapsed time (min)</th>
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<th>Drawdown (m) (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (pH)</th>
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¹ Chloride sampling required
² Use same ending drawdown figure as start for recovery

Flow meter reading at end of pumped period: 375,986 gals
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END TEST  Date: 8/14/02  Time of day: 246 PM

ADDITIONAL REMARKS:

Person in charge of pump test (print): Mike Robertson
Signature: [Signature]

The signature above indicates that the data reported on this form is accurate and true to the best
# STEP-DRAWDOWN PUMP TEST DATA

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

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<th>Pumped Well No.</th>
<th>Kea Lani irrigation</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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START TEST Date: 2/13/02 Time of day: 9:00 AM

Flow Meter Reading Start: 682 gallons

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<th>Drawdown S (unadjusted to nearest 0.1 ft.)</th>
<th>Pumping rate Q (at least 3 steps) (gpm)</th>
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Data in this table is for: Pumped Well Observation Well

Remarks

Chloride sample taken

Step 2 begin?
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<th>Actual Elapsed Time (min)</th>
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<th>Drawdown S (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (at least 3 steps) (gpm)</th>
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### Table 1 (SDPTD Form 12/17/97)

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<th>Suggested Elapsed Time (min)</th>
<th>Actual Elapsed Time (min)</th>
<th>Depth to water (nearest 0.1 ft)</th>
<th>Drawdown (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (at least 3 steps) (gpm)</th>
<th>EC (mS/cm)</th>
<th>Temp. °F or °C</th>
<th>Cl⁻ (mg/l)</th>
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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: 15636 gals

---

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
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**END TEST**  Date: 8/13/02  Time of day: 11:30 AM

**ADDITIONAL REMARKS:**

Person in charge of pump test (print): **Mike Robertson**

Signature: **Mike Robertson**
August 7, 2002

To: Water Resource Commission

Re: Kea Lani Pump Test

As was discussed with Roy this morning, we would like to start the pump tests at the Kea Lani next Monday morning, August 12, 2002. We would like to begin the Step Test on Monday morning; after full recovery, follow with the Constant Rate Test.

Sincerely,

Michael Robertson

\(\approx\)

Kevin ought to be able to do per Glenn’s email. Should double-check with Kevin.
Mr. Todd Sherman  
The Fairmont Kea Lani  
4100 Wailea Alanui Drive  
Kihei, HI 96753  

Dear Mr. Sherman:  

Notice of Commission Action  
The Fairmont Kea Lani Irrigation Well (Well No. 4026-13)  

This letter serves as your official notice of action taken by the Commission on Water Resource Management (Commission) on the subject application. By a unanimous vote of the Commission at their meeting on July 24, 2002, the Commission:  

Approved the installation of the permanent pump for pump testing in The Fairmont Kea Lani Irrigation Well (4026-13), subject to the standard conditions, and the following conditions:  

1. The permittee shall notify staff one week in advance of the pump test dates.  
2. The pump tests shall be started within one week of the installation of the pumps. Otherwise, the pumps shall be removed.  
3. The step-drawdown test shall be performed first and the well allowed to rest for 1 day or until full water level recovery occurs before starting the long-term test.  
4. The applicant shall submit pump test results within one day of the completion of each individual pump test on forms provided by the Commission.  
5. Staff will complete its analysis of pump results within one business day and issue a pump installation permit if pump tests for the particular well are satisfactory.  
6. In the event that a well's pump tests are not satisfactory to Commission staff, the applicant shall rerun the pump tests in accordance with a, b, and c above until they are in compliance with standard pump test requirements.  

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  

Cl: ss
VARIFICATION AND DECLARATORY RULING ALLOWING USE OF PERMANENT PUMPS FOR AQUIFER TESTING

Kamaole Sands AOAO
Irrigation Well (4326-10)

The Fairmont Kea Lani
Irrigation Well (4026-13)

Makena Surf AOAO
Irrigation Well (3926-11)

Maui County Parks Department
Lahaina Park Well (5240-07)

APPLICANTS/ LANDOWNERS:

Kamaole Sands AOAO
2695 South Kihei Road
Kihei, Maui

The Fairmont Kea Lani
4100 Wailea Alanui Drive
Kihei, Maui

Makena Surf AOAO
96 Makena Alanui Drive
Kihei, Maui

Maui County Parks Department
1580 C Ka'ahumanu Avenue
Wailuku, Maui

DESCRIPTION:

Location: (See Exhibits 1 a-d)
Dimensions: pump size casing dia. Aquifer System

Kamaole Sands (4326-10) 180 gpm 6 in. Kamaole
Kea Lani (4026-13) 250 gpm 6 in. Kamaole
Makena Surf (3926-11) 210 gpm 6 in. Kamaole
Lahaina Park Well (5240-07) 135 gpm 6 in. Launipoko

BACKGROUND:

April 15, 1998 Through the initiation of the same driller, the Commission adopted Declaratory Ruling DEC-ADM 98-G5 (Exhibit 2), which permitted the use of permanent pumps as test pumps for wells where the installed pump capacity would be equal to or less than 70 gpm.

August 27, 2001  Well Construction Permit approved for Lahaina Park Well (Well No. 5240-07).
October 9, 2001  Application submitted to Commission for Makena Surf Well (Well No. 3926-11).
November 5, 2001 Well Construction Permit approved for Kea Lani Well (Well No. 4026-13).
December 4, 2001 Well Construction Permit approved for Makena Surf Well (Well No. 3926-11).
January 30, 2002  The Commission approved a variance allowing the installation of permanent pumps for well testing in the PIA-Kona Limited Partnership Wells (Well Nos. 4757-03 & 04), for 550-gpm pumps. A special testing protocol was to be followed in this variance approval (Exhibit 3).
February 27, 2002  The Commission found Wailani Drilling and the Kihei Akahi Condominium Association in violation of the Water Code for installing permanent pumps (150 gpm capacity) to test pump a well without a variance to do so. The Commission fined both the driller and applicant $750 each and also approved an after-the-fact pump installation permit for the Kihei Akahi Well (Well No. 4327-07).
March 2, 2002  Application submitted to Commission for Kamaole Sands Well (Well No. 4326-10).
March 27, 2002  Fines for the permanent pump violation in Well No. 4327-07 paid in full for both applicant and driller.
April 1, 2002  Well Construction Permit approved for Kamaole Sands Well (Well No. 4326-10) since previous fines paid.
May 23, 2002  Wailani Drilling, Inc. confirmed the request for a variance from the Water Code for each of the four captioned wells to permit installation of a permanent pump for well and aquifer testing.

**ISSUES/ANALYSIS:**

**HAR §13-168-12(a) states:**

"No well shall be constructed, altered, or repaired and no pump or pumping equipment shall be installed, replaced, or repaired without an appropriate permit from the commission."

Well Construction Permits (Exhibit 4) bear three standard provisions affecting installation of pumps:

1) The opening paragraph caption reads: "...this document permits the construction and testing..." (emphasis added)

2) Standard Condition #2 reads: 
   
   "No permanent pump may be installed until a pump installation permit is approved and issued by the Commission."

3) Standard Condition #7 reads:

   "The following shall be submitted to the Chairperson within sixty (60) days after completion of work: ...e. Complete pumping test records, ..." (emphasis added)

The main issues for this variance request deal with pump tests, the hydrologic data generated from these tests, and the cost and (in)convenience of doing such tests for the permittee.

Section 2.9 (b) of the Hawaii Well Construction and Pump Installation Standards (HWCPS) specifies that a step-drawdown test is required for any proposed pump pumping greater than 70 gpm. The step-drawdown test
is required to establish the efficiency of the well and to provide preliminary information on the yield, drawdown and salinity of the well. Therefore, all these wells require a step-drawdown test. The specific requirements pertaining to the constant rate test can be found in Section 2.9 (b), which is attached as Exhibit 5.

Section 2.9 (c) of the HWCPIS specifies that for these wells, a constant rate pump test at least 24 hours is required. Constant rate pump tests are required to determine hydraulic properties of the aquifer, to identify nearby boundaries such as dikes in wells located in confined and semi-confined aquifers, or to determine any trend in salinity in wells located in aquifers affected by salt water intrusion. The specific requirements pertaining to the constant rate test can be found in Section 2.9 (c), which is attached as Exhibit 5.

Historically, these pump tests have been performed with temporary line-shaft test pumps capable of a wide range of pumping rates. The data from such tests were then used to size and design the final permanent pump. As a policy to enforce compliance, staff requires that pump tests are acceptably performed before the issuance of the pump installation permit for the permanent pump.

Due to the relatively small size of individual home owner 70 gpm pumps, Section 2.9 (b) of the Hawaii Well Construction and Pump Installation Standards (HWCPIS) specified that a step-drawdown test is only required for any proposed pump pumping greater than 70 gpm. Further, for pumps less than 50 gpm a long-term aquifer test is not required either. Given that the data collected from these relatively small wells are of limited value, the Commission approved DEC-ADM 98-G5 for these wells in non-water management areas where the use is for private individual needs.

The first issue is that DEC-ADM 98-G5 does not apply to the subject permits, but the driller is asking for a variance to install the permanent submersible pump to do the pump testing and prior to the issuance of a PIP. All these wells are private but are for more than individual homeowner needs envisioned under DEC-ADM 98-G5. Also, the size of these well require both a step-drawdown test and long-term test of at least 24 hours. Therefore, these wells are to pump significant quantities of water for rather large uses and accurate data must be collected from these proposed sources.

The second issue is the same as raised in the original DEC-ADM 98-G5 and similar to the PIA-Kona Limited Partnership Wells (Well Nos. 4757-03 & 04), for 550-gpm pumps; namely balancing economic savings to the permittee vs. the accurate data collection needs of staff and the public. The Commission resolved this balance by requiring a stricter timeline on both the driller and staff in gathering, reporting, and analyzing the data from pump tests.

A third issue raised by the driller is one of safety. Installing then uninstalling temporary pumps then installing a permanent pump obviously raises the potential for accidents. Staff acknowledges this potential but does not see this as a new or different issue than any other well that has been constructed in the past or requires proper pump test data to be collected. Well drilling is a dangerous job by its nature and collecting accurate hydrologic pump test data is required.

The last issue, again raised by the driller, is that by not connecting pump controls it can be said that the permanent pump is not really installed. The driller is proposing that a reasonable alternative would be to allow a submersible of any size to be permanently installed, used for testing, and only after the PIP is issued would the appurtenances that actually allow the pump to operate be installed. However, PIPs only concern the physical portions of the pump which are installed in the casing and set the upper limit of the actual pumping capacity of the well. The Commission does not require permits or reports when pump appurtenances outside of the casing, such as controls, meters, connections, etc. are modified nor is it necessary to track (with the possible exception of meters). Staff feels this issue is irrelevant since the main issue is one of data vs. economic savings afforded the permittee.

Ultimately, if the permittee can comply with the pump test standards, in a timely manner, using the permanent submersible pump, there should be no problem allowing for its installation prior to the issuance of the PIP. The experience of the PIA-Kona Limited Partnership Wells (Well Nos. 4757-03 & 04) was mixed. The driller did
not give staff a one week notice before faxing results. Also, both the step-drawdown and long-term pump tests were submitted on the same day rather than on separate days right after each test. Further, data was not provided on forms created and used by staff that follow the standards and make it easier for both the driller and staff to understand the data collected. These submission problems caused delays in the staff analysis and PIP issuance turnaround. It took staff 2 weeks, rather than the 1 day staff had committed to, to do the complete analysis. Staff does feel that if data is submitted on official forms at the completion of pump tests then we can again commit to a 1 day turnaround for analysis and approval, especially since we have recently hired an additional geologist.

RECOMMENDATION:

That the Commission:

A. Approve the installation of permanent pumps for pump testing in Kamaole Sands AOAO Irrigation Well (4326-10), Makena Surf AOAO Irrigation Well (3926-11), The Fairmont Kea Lani Irrigation Well (4026-13), Maui County Parks Department Lahaina Park Well (5240-07), subject to the standard conditions in Exhibit 6, and the following conditions:

1. The permittee shall notify staff one week in advance of the pump test dates.
2. The pump tests shall be started within one week of the installation of the pumps. Otherwise, the pumps shall be removed.
3. The step-drawdown test shall be performed first and the well allowed to rest for 1 day or until full water level recovery occurs before starting the long-term test.
4. The applicant shall submit pump test results within one day of the completion of each individual pump test on forms provided by the Commission.
5. Staff will complete its analysis of pump results within one business day and issue a pump installation permit if pump tests for the particular well are satisfactory.
6. In the event that a well's pump tests are not satisfactory to Commission staff, the applicant shall rerun the pump tests in accordance with a, b, and c above until they are in compliance with standard pump test requirements.

Respectfully submitted,

LINNEL T. NISHIOKA
Deputy Director

Exhibit(s):

1. (Location Maps)
2. (Declaratory Ruling DEC-ADM 98-G5)
3. (Submittal for Kona-PIA Limited Partnership Well (Well No. 4757-03 & 04), January 30, 2002)
4. (Standard Well Construction Permit Conditions)
5. (Pump Test Procedures)
6. (Standard Pump Installation Permit Conditions)
Dear Mr. Sherman:

Special Condition on Well Depth
Kea Lani Irrigation Well (Well No. 4026-13)

Following discussions with Wailani Drilling Company concerning the anticipated need to drill deeper than one-fourth the theoretical thickness of the aquifer, we received a copy of a memo to Wailani Drilling from Tom Nance acknowledging his participation as a qualified ground-water engineer in analyzing preliminary yield, drawdown, and chloride data from this well.

Mr. Nance's opinion is that the initial head would be expected to be about 1 foot, meaning that the well could be drilled no deeper than 10 feet below sea level without authorization from the Chairperson based on a qualified analysis. The driller's expectation is that water may not be encountered at sea level, and that it may be necessary to drill deeper than ten feet below sea level to reach any basal water.

Mr. Nance proposes to do continuous logging of conductivity and temperature in the well bore, in addition to discrete sampling from top and bottom of the water column in the well. He will install a pressure transducer to separate tidal influences during testing.

By this letter, we set the protocol for drilling this well with the following steps:

1. An elevation survey of the wellhead must be done to provide Mr. Nance with a certified elevation essential to his analysis.

2. The driller will attempt to gain permission to use Well No. 4026-02 (Polo Beach Club, TMK 2-1-11:1, across South Kihei Road) as a monitoring well.
3. After notifying the Commission of his drilling date, the driller (Wailani) will drill to no more than ten feet below sea level and report the results to the Commission by phone or fax. If water is present, the chloride reading will be reported. If there is no or little water at ten feet below sea level, the Commission staff will authorize the driller to continue until water is reached.

4. The driller will then stop work while those results are reported to the Commission staff by phone or fax. The results will include the depth where water was initially encountered, equilibrium water level in the well bore, and chloride and temperature information.

5. The Commission staff will authorize pump testing to commence, and Tom Nance will initiate his data gathering and analysis. Following the test, work will stop until the Commission has reviewed the information and given further instructions. If the driller immediately submits raw data upon completion of the testing, staff will analyze, review, and follow-up within one day to minimize drilling costs.

6. The full 250 gpm pump capacity may not be granted if Mr. Nance’s work and the pump tests show that salinity or water levels will be unstable at this rate.

If you have any questions, please contact Charley Ice of the Water Commission staff at 587-0251 or toll-free at 984-4644, extension 70251.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

Cl:ss
FROM: Charley

TO: BAUER, G.
     FUJII, N.
     OHYE, M.
     JINNAI, R.
     IMATA, R.
     NAKAMA, L.
     HIGA, D.

TO: HARDY, R.
     HIRANO, E.
     SAKODA, E.
     NAKANO, D.
     NISHIOKA, L
     DANBARRA, S
     SUBIA, S.
     YODA, K.

INIT: H

FOR: Approval
     Signature
     Information

DATE: 26/12/2000

SUSPENSE DATE

Please See Me

I'm sorry - didn't need a submitted for this.

How about just sending a fax noticing they can proceed?

Sure.

Please See Me

Fax Cover sheets?

Hasn't signed WEP yet.  I faxed Nov 21, 2001, not logged in!

I've asked Mitch to do so - my oversight.
FAX: Transmitting 3 pages, including this one; call 587-0251 with any reception problems.

TO: Mike Robertson  
FROM: Charley Ice

You will be happy to learn that our preferred procedure has finally come to light. In the matter of well-depth, we can approve administratively. Please follow conditions specified in our December 28 letter (attached)

P.S. This means we do not need to get Commission approval, and you may proceed on the basis of the 28 Dec. letter.

08 Apr 02 call from Waiulu to commence work today

09 Apr 02
Mike Robertson 415
Wm 10 ft of well encountered water-bearing a'a, may not need to deepen. Will sample tomorrow
This is a proposed brackish well in Kihei, and Tom Nance was going to do some testing to see if it were OK to drill below one-fourth the aquifer thickness (specifically: to see how stable the chlorides are during pump testing). But in order to do the tests, he needs enough feet of water column to avoid vortaxing. Roy wants us to talk together about it. I'm leaving some material in your tray to peruse before I arrive tomorrow am.

Tom Nance says essentially the same that I understand from Mike Robertson -- that he may not hit water at sea level, and is not certain to have sufficient water column to keep a submersible from vortexing (cavitating). The pump dimensions I get are that the motor will rest about 1 ft. off the bottom, and is about 3.5 ft long (6-in dia), so the intake is about 4.5 ft above the bottom. The pump bowls and impellers measure about 4 ft. long above that, and Mike believes it's safer to expect more drawdown than he actually gets -- maybe a foot, and that his rule of thumb is to allow 5 ft of submergence above the intake to avoid vortexing. So it sounds like he needs a water column of 8.5 - 9.5 ft, minimum, to conduct the testing.

If Tom is correct in thinking there must be at least 1 ft. head in the aquifer, Mike has ten feet to work with. If Mike has to penetrate that "bluerock" layer below sea level, as he has encountered before on this side, he obviously has to drill until he hits water, and that may or may not be 10 feet.
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**FROM:** LINNEL  
**DATE:** DEC 12 2001  
**SUSPENSE DATE:** __________

\[Signature\]

\[Omg.\]
MEMORANDUM

TO: Mike Robertson - Wailani Drilling

FROM: Tom Nance

SUBJECT: Kealani Irrigation Well, State No. 4026-13, in Wailea, Maui

As I understand it, you are about to begin drilling Well 4026-13 for the Kealani Fairmont in Wailea. The well will be located at about 70-foot elevation and about 1000 feet from the shoreline. Your past experience has indicated that it will probably be necessary to drill deeper than 1/4 of the theoretical basal lens thickness in order to obtain the necessary yield and provide sufficient submergence for the permanent pump. At the authorization of Mr. Todd Sherman of the Kealani Fairmont, I would do the following items of work to evaluate the appropriateness of the depth drilled:

1. After drilling to the final depth is completed, I would create a conductivity and temperature profile through the water column using a CTD. Grab samples from the top and bottom of the water column would also be taken and analyzed for chloride concentration.

2. A pressure transducer-data logger and recording conductivity meter would be installed to collect data during all pump testing to determine the stability of pumped water salinity and the tidal influence on groundwater. These data would be in addition to the discrete samples and manual water level measurements made by you and/or your staff during the pump tests.

3. Following completion of testing, all data would be compiled in a letter report which would also contain an interpretation of the groundwater conditions and a judgement on the appropriateness of the depth of the well. We will need to have a certified elevation of the well for me to complete this aspect of the work.

cc: Linnel Nishioka - CWRM
TO

DATE 10/10
TIME 2:02

WHILE YOU WERE OUT

Make Phone Call at 301-546-7679

Message recording continues by

Kirk's leave, so don't leave than
discourse samples for him.

Operator
MEMORANDUM

TO: Mike Robertson - Wailani Drilling
FROM: Tom Nance
SUBJECT: Kealani Irrigation Well, State No. 4026-13, in Wailea, Maui

As I understand it, you are about to begin drilling Well 4026-13 for the Kealani Fairmont in Wailea. The well will be located at about 70-foot elevation and about 1000 feet from the shoreline. Your past experience has indicated that it will probably be necessary to drill deeper than 1/4 of the theoretical basal lens thickness in order to obtain the necessary yield and provide sufficient submergence for the permanent pump. At the authorization of Mr. Todd Sherman of the Kealani Fairmont, I would do the following items of work to evaluate the appropriateness of the depth drilled:

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2. A pressure transducer-data logger and recording conductivity meter would be installed to collect data during all pump testing to determine the stability of pumped water salinity and the tidal influence on groundwater. These data would be in addition to the discrete samples and manual water level measurements made by you and/or your staff during the pump tests.

3. Following completion of testing, all data would be compiled in a letter report which would also contain an interpretation of the groundwater conditions and a judgement on the appropriateness of the depth of the well. We will need to have a certified elevation of the well for me to complete this aspect of the work.

cc: Linnel Nishioka - CWRM
For: Charlie Ike  
From: Mike Robertson  
Re: Kealani well depth  

In this fax is an explanation letter you requested and a copy of a letter addressing this issue over a year ago.

Thanks for your help

11/21/01

5 pages incl. this one

Thank you:
Mike Robertson
To: Charlie Ice  
For: State of Hawaii Water Resource Commission  
RE: The Kealani Hotel and Theoretical Lense Thickness and Drilling Depth

As addressed in a letter on 9/22/00 and in your response to the Commission dated 10/26/00, the Ghyben-Herzberg principle does not hold true across the board in all geologic conditions. On the south shore of Maui close to the ocean in particular the lense has a very low static head (usually just a few inches).

If we stay with the letter of this standard we would not have enough room in the well to install the pump.

As far as I know there are no wells used for domestic purposes in this area of the Island. All the wells I believe are for irrigation only and are all brackish to some degree.

I expect to encounter water at or slightly below sea level depending on weather or not there is any confining basalt or not. If there is then there will not be any water until we break through this layer.

Your office has been approving well applications for years with these estimated water and well depth levels. In fact you approved the Kealani well permit with an estimated .5 ft. of head which according to G.H. principle only allow us to drill to 5.13 ft. below sea level and you approved the application which shows we intend to drill 10 ft below sea level.

I have been assuming since our last addressing this issue that you are maintaining the position that the G.H. principle is a guiding principle for some aquifers but not all and certainly not the absolute rule of law. I have been told verbally and by letter as such from the commission and certainly the history of the way you have handled this in the past has led me to believe there was some leeway in applying some of these standards.

I would like to see these issues clarified and settled especially in light of recent confusion on other issues.

I appreciate your expediting the permit in a timely fashion but now I will await your response on this matter. The owners are anxious to drill.

I believe developing the brackish wells on this side of the Island is good stewardship of our water resource because every gallon or hundreds of thousands of gallons pumped on this side for existing irrigation demands is a gallon or hundreds of thousands of gallons less that will be pumped from the already stressed Iao Aquifer.

Thank You.
Sincerely,  
Mike Robertson

We will go to CVRM for a variance on this one
To: Charlie Ice  
For: State of Hawaii Water Resource Commission  
RE: Theoretical Lense Thickness and Drilling Depths

There has been some discussion lately concerning the one of the water commissions well permit conditions. Namely the drilling being restricted to \( \frac{1}{4} \) the depth of the theoretical thickness of the basalt lense.  
Although I am not a geologist or hydrologist, I have acquired much information from drilling wells mainly on Maui and have come to some interesting conclusions of my own which I believe will be of interest to the water commission. I have drilled wells in most areas completely around Maui and in effect mapped much of the underlying geology in our well logs.  
The U.S.G.S. in the 1999 ground water report for Haiku to East Maui 98-412 acknowledged Wailani Drilling as providing useful information from wells drilled in the subject area.  
The primary method of drilling I use (Air Rotary Pneumatic) is fairly new technology as compared to cable tool, mud rotary and conventional rotary methods.  
If utilized correctly it is a very precise and accurate method of subterranean and hydrogeologic exploration.  
Wailani Drilling currently owns 3 air rotary rigs. Each rig, before used in the field was specially plumbed so as to accurately read low static back pressures directly on the drill pipe and bit without interference from tank or other line pressures.  
Every time before another drill pipe is added, this static pressure is checked, not only to record any water level changes in the borehole but to also insure the borehole is clear of any heaving formations that could cause us to become stuck.  
In addition to monitoring static air pressure, air feed line pressure, receiver tank pressure, intermediate stage pressure, hydraulic rotation pressure, and hydraulic holdback pressure are also closely monitored. With these instruments and monitoring the penetration rate, cuttings (when they return to surface) and even the sounds and vibrations of the rig we can tell almost exactly what is going on down the borehole.  
A few wells we have drilled in perched water we have been able to calculate almost the exact volume of water entering the borehole per minute by calculating the cubic area of the borehole minus the cubic area of the drill pipe and timing the recharge rate as recorded in static pressure after blowing much of the water from the borehole.  
I have happily refunded tens of thousands of dollars to customers due to either hitting perched water or in certain alluvial areas drilling shallower than expected.  
The pressure gauge tells the truth, 1 pound of static back pressure = 2.31 ft of head in the hole. Another sure confirmation is the down hole color camera. Every well we drill is videoed before the casing is installed to confirm our log and to insure no rocks have fallen in to block the borehole.  
Most are recorded and archived for future reference.
One thing I have discovered is that many times especially on the North Slopes of Maui the contours of the land on the ground surface closely mirror the subterrane. North Maui is very consistent in the depth and thickness of the lava flows. In fact the well log from Eddington-Ulumalu was almost identical to the West Kuiaha-Smith well even though it is several miles away and east of the Smith well.

In the Haumana Rd. area, a small area on the northern slope of Haleakala, we have drilled 10 wells the results are the same, same geology at almost the same depths. Also the angles are somewhat similar. On steep sloped usually ramping formations are encountered. On knolls, many times the lava flows bulge upward and on the end of knolls the flows many times take a downward dive and provide a dike for perched water such as is the case in the Huelo-Lowen Well where we encountered 25 gpm 300 ft above sea level.

Many times in the bottom of gulches the basalt flows are deeper than usual such as the Honopou-Young Well where we drilled in a dry hole 70 ft below sea level until we broke through the cap rock. Then the water rose up slightly above sea level and was of good quality (90 mgl chlorides). This well is only 75 meters from the ocean and 10 meters from a stream bed.

The Maui Beach Hotel Well is another example. This well was drilled at an elevation of 8 ft. directly on Kahului Harbor. The previous well was dug with a back hoe and cased with a 2 ft. diameter perforated steel culvert to 11 ft. The chlorides were very high in the old well (900 mgl). The old well was a sand pumper and they were constantly burning out pumps. The well we constructed was completed after 2 attempts. The first drilling was to 11 ft. where we encountered a rock ledge. We cased and grouted into the rock ledge with 6 in. casing hoping to seal off the sandy brackish water above the ledge and find better quality sand free water below such as had been our past experience. After drilling through the casing with a 6 in. bit we found the basalt ledge to be only 5 ft thick with more sand and coral under the rock ledge. The chlorides were also 900 mgl. We sealed this well with grout and drilled a 2nd hole and encountered another basalt ledge at 40 ft. below ground level (-48.86 ft.). We then grouted 6 in. casing and sealed to the deeper rock ledge. After the grout cured (4 days) we drilled through this ledge which was 30 ft. thick and encountered a pahoehoe formation with very good porosity, no sand and 250 mgl water.

We have drilled many other wells along the north shore beaches including 3 wells for Keopulani Park with very similar results.

The Launiupoko Well #2 is still in the testing stage due to problems with their generator. This well however has had some interesting characteristics. The drill site is mauka of well #1 by a few hundred meters and on a terrace cut on the side of a steep deep gulch. The top 100 ft. was bouldery and alluvial. The lower 800 ft. of the borehole was very consolidated mostly volcanic basalt blue rock but ramping at an angle. This was one of the few wells where we never lost the return of cuttings to the surface. The hole was dry to 885 ft. at 885 the formation was still quite dense judging by the penetration rate and I was concerned about porosity and yield. My concerns were not unfounded as the step draw down showed 10.76 ft. draw down at 850 g.p.m.

The recovery rate was also very slow (almost 4 hours to fully recover). The chlorides in this well remained low (70 mgl) throughout the step test however after 13 hours of the constant rate test the chloride level began to climb until we shut the test down after 62 hours with chloride level at 350. After letting the well sit for 1 week we rechecked the chlorides
and they were down to 40 mgl. My theory is there is a confining dike condition on the gulch side and a fairly impermeable formation in the area around the well as the well log shows.

After drilling over 50 wells around the Island of Maui I have concluded that in most areas there is a dense basaltic lava flow which varies in thickness from 30 - 80 ft. thick and extends from 30 - minus 80 ft. msl. depending on the area. This dense formation is not capable of hydraulic conductivity but acts as an excellent cap rock to shield the underlying aquifer from surface contamination. It also tends to confine the lense below sea level and sometimes sandwiches the water between 2 lava flows. I have speculated that as the island was formed thousands of years ago, the volcanic cone began to rise above the ocean level and continued to pour lava down the slopes into the sea. This particular flow cooled very rapidly when it made contact with the cool ocean. The rapid cooling caused it to become very porous and brittle such as the characteristics of AA, Pahoehoe and cinders forming very broad zones of porosity. The next flows flowing above the ocean level cooled slowly and also cooled under pressure from the succeeding flows above. This caused these flows to be very dense and hard such as Basaltic Blueroock.

The only reasons I have been able to conclude as to why these dense ledges of basalt are sometimes 80 ft. or more below sea level are: 1. Geologic upheavals and earthquakes which caused a wrinkling of the formations. 2. The Islands have sunken lower into the sea which is well documented with islands of volcanic origin. 3. Sea levels have risen over thousands of years. My guess is it is some combination of all three and maybe even other factors as well.

As you can see from the information I have compiled the Ghyben-Herzberg principle (1/4 depth theoretical thickness) could not possibly be accurate in much of the geology on Maui. In wells such as the Olowalu-Elua Well I am sure the Ghyben-Herzberg principle holds true. This well was drilled in an old riverbed and was boulders and alluvial fill all the way to - 20 ft. msl. This is where we stopped drilling allowing only enough depth to provide space for the pump. Other areas where the geology at sea level is porous would also be candidates for the use of this theory.

I have raised the question of this permit condition and discussed this with Charlie Ice, Mitch Oye, Glen Bauer, John Mink, Steve Bowles and Steve Gingrich. Pretty much the unanimous response is that this permit condition is a guideline and does not apply to all types of geologic conditions or all areas of the islands. We have submitted and the water commission has approved many well completion reports and well logs in the past but I would like to see an official position on this issue in writing to protect my own integrity.

Charlie Ice has been very helpful in interpreting and communicating to me the rules, general opinions and sentiments of the water commission. Everyone at the water commission has always been reasonable and at the same time professional. I am sure this issue can be resolved to the mutual benefit of all parties involved.

Thank You.

Sincerely,

Mike Robertson
For: Charlie Ica.
From: Mike Robertson
Re: Kealani.

Enclosed is the signed permit for Kealani. Hard copy to follow in mail.
I would like to start drilling 11/27/01 Please let me know if this is OK.
Also I wanted to make sure I am clear with item #3 on the permit.
This is a breakback mitigation well and may have a head of only a few inches. If this is the case
I would have to exceed the rule to have room in the well for the pump to be submerged.
Please fax me a note to this regard.

Thank you: Mike Robertson

11/21/01 10:42 AM
WELL CONSTRUCTION PERMIT

Kea Lani Irrigation Well, Well No. 4026-13

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 Kea Lani Irrigation Well (Well No. 4026-13) at 4100 Wailea Alanui Drive, Kealal, Maui, T/MK 2-1-233, subject to the Hawaii Well Construction & Pump Installation Standards (103/617) 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 96815, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and shall be allowed to inspect installation activities in accordance with §13-168-16, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum 1-1/2-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels. This 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 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 groundwater 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 of 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 cumulative 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 rules, rates, 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 15 days 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 §13-168-12f 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, 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: November 5, 2001
Expiration Date: November 5, 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 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: [Signature]
Printed Name: Todd Shoemaker
Firm or Title: Chief Engineer
Date: 11/20/01

Driller's Signature: Mike Robertson
C-57 License #: 2015
Date: 11/20/01
Printed Name: Mike Robertson
Firm or Title: Wailani Drilling Inc.

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

Attachment:

GUS
Department of Health Safe Drinking Water, Wastewater, and Coast Water Branches
Hawaii Department of Water Supply
William Drilling Company
Mr. Todd Sherman
Fairmont Kea Lani
4100 Wailea Alanui Drive
Kihei, Maui HI 96753

Dear Mr. Sherman:

Well Construction Permit
Kea Lani Irrigation Well (Well No. 4026-13)

Enclosed are two (2) copies of your approved Well Construction Permit for the captained 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. Please be aware that your proposed driller has unfinished business with the Water Commission, and it may 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.
3. The well casing shall meet the minimum thickness required in the Hawaii Well Construction and Pump Installation Standards (HWCPIS, Section 2.4C, January 1997).
4. In an unconfined basal aquifer, well depth shall not exceed one-fourth the theoretical aquifer thickness (HWCPIS, Section 2.2, January 1997).
5. Please note the correction in the well number for your future reference

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-ADM98-05, 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 report 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 Ige of the Commission staff at 587-0251 or toll-free at 984-2400 extension 70251.

Aloha,

GILBERT S. COLOMA-AGARAN
Chairperson

Enclosures
c. Wallani Drilling Company

I guess this didn't get logged in before. Two
Mr. Todd Sherman  
Fairmont Kea Lani  
4100 Wailea Alanui Drive  
Kihei, Maui, HI 96753

Dear Mr. Sherman:

Well Construction Permit  
Kea Lani Irrigation Well (Well No. 4026-13)

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. Please be aware that your proposed driller has unfinished business with the Water Commission, and it may 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.

3. The well casing shall meet the minimum thickness required in the Hawaii Well Construction and Pump Installation Standards (HWCPIS, Section 2.4c, January 1997).

4. In an unconfined basal aquifer, well depth shall not exceed one-fourth the theoretical aquifer thickness (HWCPIS, Section 2.2, January 1997).

5. Please note the correction in the well number for your future reference.

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 587-0251 or toll-free at 984-2400 extension 70251.

Aloha,

GILBERT S. COLOMA-AGARAN  
Chairperson

Enclosures  
c. Wailani Drilling Company
WELL CONSTRUCTION PERMIT

Kea Lani Irrigation Well, Well No. 4026-13

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 Kea Lani Irrigation Well (Well No. 4026-13) at 4100 Wailea Alanui Drive, Kihei, Maui, TMK 2-1-23-3, 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 521, Honolulu, HI 96803, 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 1¼-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 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 §13-168-12(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: November 5, 2001
Expiration Date: November 5, 2003

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 Health Safe Drinking Water, Wastewater, and Clean Water Branches
Maui Department of Water Supply
Wailani Drilling Company
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WELL NUMBER 4026-13

WELL NAME Kealani Irrigation

**WELL CONSTRUCTION**

**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**

**PUMP INSTALLATION**

**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**

Date: 07 Nov 01

Suspense Date: 11/21/01

INITIAL FOR: PLEASE:

BAUER, G.
CHING, F.
FUJII, N.
HARDY, R.
HIGA, D.
HIRANO, E.
ICE, C.
IMATA, R.
JINNAI, R.
KUNIMURA, I.
LUM, A.
NAKAMA, L.
NAKANO, D.
NISHIOKA, L.
OHYE, M.
SAKODA, E.
SUBIA, S.
SWANSON, S.
UYENO, D.
YODA, K.

See Me

1. Review & Comment
2. Take Action
3. Type Draft
4. Type Final
5. File

Xerox ______ copies
TO: Honorable Bruce S. Anderson, Director
   Department of Health
   Attention: Dennis Tulang, Wastewater Branch
   William Wong, Safe Drinking Water Branch
   Dr. Keith Kawaoka, Hazardous Evaluation and Emergency Response
   Alec Wong, Clean Water Branch

FROM: Gilbert S. Coloma-Agaran, Chairperson
   Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
   Kea Lani Irrigation Well (Well No. 4026-13)
   4026-13  "1/101-per C.Ice

Transmitted for your review and comments 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 2, 2001. 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 Charley Ice of the Commission staff at 587-0251.

Clpd
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 15 or more service connections) and must receive Director of Health approval prior to its use in compliance with Hawaii Administrative Rules (WAR), Title 11, Chapter 20, Rules Relating to Public Water Systems, §11-20-69.

[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 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.

[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 preventers by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable supplies with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.

[0] 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 [ ] not located near the proposed well site (information attached).

[1] An NPDES permit is required.

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

[1] No comments/objections

Contact Person: Stuart Yamada  Phone: 586-4258

Signed:  Date: 11/01/01

Faxed 11/8/01
The Department of Health, Safe Drinking Water Branch has the following additional comments for the Well Construction / Pump Installation Permit Application for the Kea Lani Irrigation Well (Well No. 6-4026-13 Maui):

1. It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water regulations. However, steps should be taken to prevent both direct human consumption of this water, and cross-connections with any potable water supply. If the user receives water from the Maui Department of Water Supply, 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 and piping as "NON-POTABLE", to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested. The Maui Department of Water Supply must be notified as they may require a backflow preventer on their service connection to the Fairmont Kea Lani Maui.

2. Please be advised that the Department of Health has experienced drinking water and groundwater contamination by submersible pumps containing mercury. Specifically, the failure of the seals of the pumps allowed mercury to leak out into the well shaft resulting in contamination of the well and the water served by the well. Please review your pump specifications to be sure that the submersible pump(s) you are proposing to use do not contain materials which could result in either groundwater contamination or drinking water contamination.
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
TO: Honorable Bruce S. Anderson, Director
Department of Health
Attention: Dennis Tulang, Wastewater Branch
William Wong, Safe Drinking Water Branch
Dr. Keith Kawakami, Hazardous Evaluation and Emergency Response
Alec Wong, Clean Water Branch

FROM: Gilbert S. Coloma-Agaran, Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Kee Lani Irrigation Well (Well No. 4126-08)

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 letter memo form by November 2, 2001. 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 Charley Lee of the Commission staff at 586-0261.

C: [redacted]

Attachment(s)

RESPONSE:

This well qualifies as a source which will serve as a source of possible water to a public water system (defined as serving 25 or more people at least 30 days a year or 15 or more service connections) and must receive Director of Health approval prior to use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 35, Rules Relating to Public Water Systems (§11-65-25).

If the well is used to supply both potable and non-potable purposes in a single system, the well must be protected from contamination and satisfy the criteria of density and quality of the water supply. The water quality must meet the standards prescribed by the State Department of Health. Non-potable wells should be notified in cases where the water is not to be used for potable purposes. Non-potable wells should be isolated from potable wells to prevent cross-contamination.

This application meets all criteria for the non-potable use of the well. It is not located near the proposed well site.

An HPD58 permit is required.

Contact Person: Alec Wong
Phone: 586-4309

Signed: Alec Wong
Date: 11/2/01
TO: Honorable Bruce S. Anderson, Director
Department of Health
Attention: Dennis Tulang, Wastewater Branch
William Wong, Safe Drinking Water Branch
Dr. Keith Kawaoka, Hazardous Evaluation and Emergency Response
Alec Wong, Clean Water Branch

FROM: Gilbert S. Coloma-Agaran, Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Kea Lani Irrigation Well (Well No. 4026-08)

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 2, 2001. 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 Charley Ice of the Commission staff at 587-0251.

Cl:sd
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 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: Leni N. Kajiwara
Phone: 5864294

Signed: Leni N. Kajiwara

Date: 11-7-2001
TO:  Harry Yada, Acting Administrator 
Land Division

FROM:  Linnel T. Nishioka, Deputy Director 
Commission on Water Resource Management

SUBJECT:  Well Construction/Pump Installation Permit Application 
Kea Lani Irrigation Well (Well No. 4026-08)

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 2, 2001. 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 Charley Ice of the Commission staff at 587-0251

RESPONSE:

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

XXX 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

XXX Other comments: Original source of private title is Land Commission Award No. 11216, Apana 21 issued June 19, 1852.

Contact Person:  Eric Leong
Phone:  587-0386

Signed:  Eric Leong
Date:  NOV 2 2001
TO:
Honorable Bruce S. Anderson, Director
Department of Health
Attention: Dennis Tulang, Wastewater Branch
William Wong, Safe Drinking Water Branch
Dr. Keith Kawaoka, Hazardous Evaluation and Emergency Response
Alec Wong, Clean Water Branch

FROM:
Gilbert S. Coloma-Agaran, Chairperson
Commission on Water Resource Management

SUBJECT:
Well Construction/Pump Installation Permit Application
Kea Lani Irrigation Well (Well No. 4026-98)

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 2, 2001. 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 Charley Ice of the Commission staff at 887-0261.

Claud
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 more than 15 service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 29, Rules Relating to Potable Water Systems, §11-29-2.

2. 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 shall 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 prevention by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable systems with writing 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 [ ] is not located near the proposed well site (information attached).

6. An NPDES permit is required.

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

8. No comments/objections.

Contact Person: Stuart Yamada
Phone: 586-4258

Signed: [Signature]
Date: 11/01/01
The Department of Health, Safe Drinking Water Branch has the following additional comments for the Well Construction / Pump Installation Permit Application for the Kea Lani Irrigation Well (Well No. 6-4026-13 Maui):

1. It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water regulations. However, steps should be taken to prevent both direct human consumption of this water, and cross-connections with any potable water supply. If the user receives water from the Maui Department of Water Supply, 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 and piping as "NON-POTABLE", to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested. The Maui Department of Water Supply must be notified as they may require a backflow preventer on their service connection to the Fairmont Kea Lani Maui.

2. Please be advised that the Department of Health has experienced drinking water and groundwater contamination by submersible pumps containing mercury. Specifically, the failure of the seals of the pumps allowed mercury to leak out into the well shaft resulting in contamination of the well and the water served by the well. Please review your pump specifications to be sure that the submersible pump(s) you are proposing to use do not contain materials which could result in either groundwater contamination or drinking water contamination.
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
TO: Honorable Bruce S. Anderson, Director  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch  
Dr. Keith Kawaoka, Hazardous Evaluation and Emergency Response  
Alec Wong, Clean Water Branch

FROM: Gilbert S. Coloma-Agaran, Chairperson  
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application  
Kea Lani Irrigation Well (Well No. 4026-08)

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 2, 2001. 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 Charley Ice of the Commission staff at 587-0251.

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 16 or more service connections) and must receive Director of Health approval prior to 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 80 days per year or 16 service connections) and if the well water is used for drinking, the private owner should test for pathobiological 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 in an approved backflow preventer, and by clearly labeling all non-potable spouts 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: Alec Wong  
Phone: 586-0389

Signed: Alec Wong  
Date: 1/7/01
Mr. Todd Sherman  
Fairmont Kea Lani  
4100 Wailea Alanui Drive  
Kihei, Maui, HI 96753  

Dear Mr. Sherman:  

Unfinished Business with Driller  
Well Construction/Pump Installation Permit Application for Well No. 4026-08  

The Commission occasionally includes a paragraph noticing applicants if their driller has unfinished business that might require we would not accept their signature on documentation for a new project. This was done in the captioned case, and this letter means to clarify the situation.  

Through some misunderstandings that are now resolved, Wailani Drilling had installed a permanent pump for testing another client’s well prior to issuance of a pump installation permit. Staff is persuaded that the reasons for doing so are valid, although in violation of currently applicable rules.  

Staff will take the matter to Commission, as required by Commission policy, and request some variations in our procedure that we believe will clarify the Commission’s rules for protecting water resources and facilitate contractors in providing good service at reasonable cost. Because the prospect includes potential fines for the violation, we are obligated to inform their clients.  

It should be noted that staff considers the contractor, Wailani Drilling Company, to be a conscientious and capable driller, and we are pleased with their assistance in helping us provide the Commission with insights into the drilling business, and to adjust our procedures accordingly.  

The Commission has yet to act on this matter. We anticipate their decision on November 14, 2001.  

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

Sincerely,  

LINNEL T. NISHIOKA  
Deputy Director  

CI:sd  
c. Wailani Drilling Company
Well Construction or Pump Installation or Well Construction/Pump Installation Permit Application for Well No. 4026-08

We acknowledge receipt, on October 12, 2001, of your completed Well Construction or Pump Installation or Well Construction/Pump Installation permit application and filing fee for the Kea Lani Irrigation Well (Well No. 4026-08). You can expect your application to be processed within ninety (90) days from this date.

Please be aware that your proposed driller has unfinished business with the Water Commission, and it may 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. Please see enclosed letter.

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 Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400, extension 70251.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

Cl:sd
C: Wailani Drilling Company
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 2, 2001.** 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 Charley Ice of the Commission staff at 587-0251.

**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: _____________
TO: Honorable Bruce S. Anderson, Director
Department of Health
Attention: Dennis Tulang, Wastewater Branch
William Wong, Safe Drinking Water Branch
Dr. Keith Kawaoka, Hazardous Evaluation and Emergency Response
Alec Wong, Clean Water Branch

FROM: Gilbert S. Coloma-Agaran, Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Kea Lani Irrigation Well (Well No. 4026-08)

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Cl/sd
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.

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[ ] An NPDES permit is required.

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

[ ] No comments/objections

Contact Person: ___________________________ Phone: ___________________________

Signed: ___________________________ Date: ___________________________
Mr. Todd Sherman
Fairmont Kea Lani
4100 Wailea Alanui Drive
Kihei, Maui, HI 96753

Dear Mr. Sherman:

Unfinished Business with Driller
Well Construction/Pump Installation Permit Application for Well No. 4026-08

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Staff will take the matter to Commission, as required by Commission policy, and request some variations in our procedure that we believe will clarify the Commission's rules for protecting water resources and facilitate contractors in providing good service at reasonable cost. Because the prospect includes potential fines for the violation, we are obligated to inform their clients.

It should be noted that staff considers the contractor, Wailani Drilling Company, to be a conscientious and capable driller, and we are pleased with their assistance in helping us provide the Commission with insights into the drilling business, and to adjust our procedures accordingly.

The Commission has yet to act on this matter. We anticipate their decision on November 14, 2001.

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

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

Cl:sd

c. Wailani Drilling Company
**Commission on Water Resource Management**

**Route Slip for New Applications**

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| CHING, F. | NAKAMA, L. |
| FUJII, N. | NAKANO, D. |
| HARDY, R. | NISHIOKA, L. |
| HIGA, D. | OHYE, M. |
| HIRANO, E. | SAKODA, E. |
| ICE, C. | SUBIA, S. |
| IMATA, R. | SWANSON, S. |
| JINNAI, R. | UYENO, D. |
| KUNIMURA, I. | YODA, K. |

**WELL NUMBER** 4026 - 08  
**WELL NAME** Fairmont Kea Lani

- 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. [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:**

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COMMISSION ON WATER RESOURCE MANAGEMENT

FROM: L INNEL
DATE: OCT 12 2001
SUSPENSE DATE: ________________

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Accd to letter asking to
pls expedite Nov 2
if can.
For: Charlie Ice

Charlie, enclosed are the following items:

- __ Well Construction Permit Application for Kealani well
- __ Check for $25.00
- __ U.S.G.S. map section
- __ Tax map section

Charlie is there any way this can be expedited? My rig will be on that side for Maui Kamaole and it would be good if we could do this well after that one so as to avoid mobilizing to that side twice. If there is any way it could be processed by 4 weeks would be great.

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

Re: Kealani Well

Thank you:

Mike Robertson

## PUBLIC RECORD DATA

<table>
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<th>Taxkey</th>
<th>Subdiv/Condo</th>
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Notes: 
- Parties and has not been independently verified by Hawaii Information Service and is, therefore, not guaranteed.
- Next Page
APPLICATION FOR PERMIT

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

1. (a) WELL OWNER: The Fairmont Keh Lani Maui Contact Person: TAN SHIH CHEN Phone: (808) 875-2210
   Mailing Address: 4100 WAIKIKI ALANA DR. KINHE 96753
   Fax: 875 2245 E-mail: 

2. LAND OWNER: SHIMA
   Contact Person: 
   Mailing Address: 
   Fax: 

3. CONTRACTOR: WAIKIKI DRILLING
   Contact Person: MIKE ROBERTSON Phone: 5722673
   Mailing Address: 655 KOLOA RD HAUULA HI 96717
   Fax: 5720135 E-mail: 

Lio #: 20115

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

2. WELL NAME: The Fairmont Keh Lani Maui Island: MAUI
   Address 4100 WAIKIKI ALANA DR. KINHE 80003 Map Key: D - 1 - 23 - 3
   Zone Sec Plat Parcel
   Attach the relevant portion of (a) a 7.5-Minute Series USGS topographic map (lease 1/320,000) and include the name of the quad map, and (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 887-0225)

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

5. PROPOSED PUMP INFORMATION: Rated Pump Capacity: 250 gallons per minute

   Pump Type (Check one):
   - Deep Well Turbine
   - Rotary
   - Propeller
   - Submersible 20 HP
   - Rotary-Displacement
   - Reciprocating
   - Centrifugal
   - Rotary-Gear
   - Impulse

6. PROPOSED USE:  
   - Municipal (including hotels, resorts, etc.)  [ ] Industrial
   - Domestic (individual, noncommercial water system)
   - Irrigation (crop) LANDSCAPING  [ ] No. of Acres: APPEL 15 ACRES
   - Military
   - Other (explain):
   - Other:

7. (a) PROPOSED AMOUNT OF WITHDRAWAL: 90,000 gallons per day
   (b) METHOD OF FLOW MEASUREMENT:  
   - Flowmeter
   - Open-pipe
   - Weir
   - Orifice
   - Other (explain):

8. LEGAL REQUIREMENTS:  
   - CDUP
   - SMAP
   - EIS
   - EA
   - None
   - Other (explain):  

9. REMARKS, EXPLANATIONS:

   (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/bandonment 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 competitive water rights and shall not guarantee the pump capacity or future use up to the permitted pump capacity.

For Official Use Only:

[Signature] [Signature] [Signature]
Well Owner Landowner Contractor
(print legibly) (print legibly) (print legibly)
Date 10/6/01 Date 10/6/01 Date 10/6/01

For official use only

Aquifer System No. State Well No. 2011508
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 = \( \frac{(\text{Water Elevation} - 41 \times \text{Water Level Elev})}{2} \)

Example: Estimated + 2 ft. Water Level Elev. \( \rightarrow \) Bottom Elevation of Wall Limit = \( \frac{(12 - 41)}{2} \) = -18.5 ft.

**Solid Casing Material:**
- Carbon Steel: compliant with (check one or more): [ ] A139 [ ] A53 [ ] A312 (monitor wells)
- Stainless Steel: (check one):
  - ASTM A403 (production wells)
  - ASTM A312 (monitor wells)
- ABS Plastic conforming to ASTM F680 and ASTM D1527: (check one): [ ] Schedule 40 [ ] Schedule 80
- PVC Plastic conforming to ASTM F680 and (ASTM D1795 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 D3297
- 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): [ ] A139 [ ] A53 [ ] A312 (monitor wells)
- Stainless Steel: (check one):
  - ASTM A403 (production wells)
  - ASTM A312 (monitor wells)
- ABS Plastic conforming to ASTM F680 and ASTM D1527: (check one): [ ] Schedule 40 [ ] Schedule 80
- PVC Plastic conforming to ASTM F680 and (ASTM D1795 or ASTM D2241): (check one): [ ] Schedule 40 [ ] Schedule 80 [ ] Schedule 120
- Thermoset Plastic: (check one): [ ] Filament Wound Resin Pipe conforming to ASTM D2996
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  - 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.
18. PROPOSED WELL SECTION

( Please attach schematic if different from diagram provided below)

Elevation at top of casing: 71 ft. msl

Minimum of 2" Radius 6" Thick Concrete Pad (to contain benchmark surveyed to nearest 0.01 ft.

Ground Elevation: 70 ft. msl

Cement Grout: 60 ft.

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

Artificial space between hole and casing (min. 3")

Rock or Gravel Padding:

Material:

□ Crushed Basalt

□ Rounded Gravel

Estimated Water Level Elevation: -5 ft. msl

Solid Casing: (2: 900 x (Ground Elev - Water Level Elev))

Total Length: 7 ft.

Nominal Diameter: 6 in.

Wall Thickness: 2.5 in.

Bottom Elevation: 0 ft. msl

Open Casing:

□ Perforated

□ Screen

Total Length: 2.5 ft.

Nominal Diameter: 6 in.

Wall Thickness: 2.5 in.

Bottom Elevation: 0 ft. msl

note: Neither bentonite nor mud should be used in saturated zone during drilling

Open Hole:

Length: N/A ft.

Diameter: N/A in.

Bottom Elevation: N/A ft. msl

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 weld)

□ ASTM A312 (mirror weld)

ABS Plastic conforming to ASTM F490 and ASTM D1527: (check one)

□ Schedule 40

□ Schedule 80

PVC Plastic conforming to ASTM F490 and (ASTM D1785 or ASTM D2241): (check one):

□ Schedule 40

□ Schedule 80

□ Schedule 120

Thermost Plastic: (check one):

□ Filament Wound Resin Pipe conforming to ASTM D2298

□ Centrifugally Cast Resin Pipe conforming to ASTM D2297

□ Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517

□ Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C980

□ PTFE Fluorocarbon Tubing conforming to ASTM D3298

□ FEP Fluorocarbon Tubing conforming to ASTM D3298

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):

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* 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-seal water Bore Wells - bottom elevation of well shall not be deeper than 1/4 of aquifer thickness or,

Bottom Elevation of Well Unit = (Water Elevation - 4 ft. Water Level Elevation) / 4

Example: Estimated = 2 ft. Water Level Elevation. Bottom Elevation of Well Unit = (2 - 4 ft. Water Level Elevation) / 4 = -0.5 ft.