10. PROPOSED WELL SECTION

(Please attach schematic if different from diagram provided below)

For solid plastic:
PVC Plastic conforming to ASTM A35
Stainless Steel casing
Carbon steel casing

Annular space between hole and casing (min. 2")

Minimum of 2' Radius & 4" Thick Concrete Pad (to contain benchmark surveyed to nearest 0.01 ft.)

Ground Elevation: 800 ft., mas

Solid casing: (2.5% x (Ground Elev.-Water Level Elev.))

Total Length:
Nominal Diameter:
Wall Thickness:
Bottom Elevation:

Open casing: @ Perforated 0 Screen

Total Length:
Nominal Diameter:
Wall Thickness:
Bottom Elevation:

Note: Neither bentonite nor mud should be used in saturated zones during drilling.

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

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

Bottom Elevation of Well Limit = (Water Elevation - 4.1 x Water Level Elev.)

Example: Estimated + 2 ft. Water Level Elev. = Bottom Elevation of Well Limit = (2.4 + 2) = -18.5 ft.

Solid casing material:
Carbon Steel: compliant with (check one or more):
- ANSI/AWWA C200
- API Spec. 5L
- ASTM A53
- ASTM A139

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

Stainless Steel: (check one):
- ASTM A409 (production wells)
- ASTM A409 (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
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
APPLICATION FOR PERMIT

WELL Construction and/or Pump Installation

Applicant Information: Please fill out all three, if applicable, and place a check mark to the primary contact

1. (a) WELL OWNER: JUERS LLC
   Mailing Address: 1874 OUWAII RD
   Contact Person: Ron Soule
   Phone: 808-313-6500
   Fax: 808-573-8555
   Email: Ron Soule@Hawaii.rr.com

2. (b) LAND OWNER: JUERS LLC
   Mailing Address: 1874 OUWAII RD
   Contact Person: Ron Soule
   Phone: 808-573-8555
   Fax: 808-573-8555
   Email: Ron Soule@Hawaii.rr.com

3. (c) CONTRACTOR: WILSON DILLIN
   Mailing Address: 37-824-LEAOHOLE AVE
   Contact Person: Michael Hofley
   Phone: 578-2473
   Fax: 332-(2197)
   Email: (circle one: C-7C-67A, or A)

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

2. WELL NAME: KANEOHE-JUERS-PL1
   Address: KANEHO
   Tax Map Key: 2 3 2 12
   Zone: Sec: Plat: Parcel
   Island: Oahu
   District:
   Description:
   Map Scale: 1:24,000
   County:
   State of Hawaii
   Legal Description:
   Well Location:
   Permit No.:
   (If unknown, please call Commission at 587-0225)

3. PROPOSED WORK: (Check all that apply)
   (a) Construct New Well
   (b) Install New Pump
   (c) Modify Existing Well
   (d) Abandon Seal

4. CONSTRUCTION: (If drilled)
   Drilled: Yes / No
   Dog: Yes / No
   Shaft: Yes / No
   Site Well No.:
   Tunnel: Yes / No
   If drilled, what is the date of completion?
   If other, please explain:
   Is this well part of a battery of wells? Yes / No
   If yes, please attach a map.
   If other, please explain:
   If drilled, what is the date of completion?

5. PROPOSED PUMPING RATE:
   Municipal (including hotels, stores, etc.)
   Industrial
   Domestic (individual, non-commercial system)
   (Check all that apply)
   No. of Acres:
   If drilled, what is the rate of pumping per acre?
   gallons per minute
   If other, please explain:
   If drilled, what is the rate of pumping per acre?
   gallons per minute
   If other, please explain:

6. PROPOSED USE:
   (Check all that apply)
   If drilled, what is the rate of pumping per acre?
   gallons per minute
   If other, please explain:

7. (a) PROPOSED AMOUNT OF WITHDRAWAL:
   (b) METHOD OF FLOW MEASUREMENT:
   Gallons per day
   Gallons per day
   Open pipe
   Water
   Orifice
   Orifice
   Orifice
   Orifice
   Orifice
   Orifice
   Orifice

OTHER INFORMATION:

8. LEGAL REQUIREMENTS: If required, these permits must be obtained before the Commission can legally issue a permit
   Conservation District Use Permit (CDUP) To find out if a CDUP is necessary, call DLNR Land Division at 587-0414
   Environmental Impact Statement (EIS) or Environmental Assessment (EA) To determine if an EIS or EA is necessary, call OEC at 566-4185
   State Management Area Permit (SMAP) To determine if a SMAP is necessary: on Oahu, call 527-6374; on Hawaii, call 692-2025; for Maui county, call 270-7235; on Kauai, call 241-6877.
   Special Management Area Permit (SMAP) To determine if a SMAP is necessary: on Oahu, call 527-6374; on Hawaii, call 692-2025; for Maui county, call 270-7235; on Kauai, call 241-6877.
   If required, date approved:
   If required, date approved:

9. ARCHEOLOGICAL REQUIREMENTS: To find out if an archeological work is required: on Oahu, call Elsie Jouandeau at 652-6027; on Hawaii, call Mary Anne Maigret at 327-0690, for Maui county, call Cathy Dingier at 662-8023; on Kauai, call Nancy McIntosh at 742-7033.
   If required, date approved:
   If required, date approved:

10. REMARKS, EXPLANATIONS:
   (If more space is needed, please attach additional sheet)
   Note: Signing below indicates the signaturee understands and agrees that the information provided on this application is accurate and true to the best of their knowledge. Further, the signaturee understands that approval of this application attaches the following conditions:
   1) the proposed work is to be completed within 17 years of approval date;
   2) the contractor shall submit to the Commission a work completed and abandonment report within 88 days of the completion date of the permitted work;
   3) monthly water use data shall be submitted to the Commission;
   4) such approval shall not constitute a determination of correlative water rights and shall not guarantee the pump capacity or future use up to the permitted pump capacity;
   5) in the event that the application is not completed correctly, any permit may be suspended until the item is brought into compliance, and any work done while the permit is in suspension may result in fines of up to $1000/day.

For official use only:
Latitude: 
Longitude: 
AQUIFER SYSTEM NO.: 
STATE WEL NO.: M417-04

For Official Use Only: FEB 12 A9:25

For Official Use Only: WPCPPA Form 7/17/03
<table>
<thead>
<tr>
<th></th>
<th>FYR</th>
<th>APPD</th>
<th>OBJ</th>
<th>CTR</th>
<th>PROJECT</th>
<th>PH ACT</th>
<th>AMOUNT</th>
<th>NAME/DESCRIPTION (WANG INPUT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>04</td>
<td>326</td>
<td>C</td>
<td>1026</td>
<td>0752</td>
<td>(1)</td>
<td>75.00</td>
<td>Wailani Drilling, Inc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$ 75.00</td>
</tr>
</tbody>
</table>

REMARKS: LINE (1) JNCRS #2 Wells and Koolau Cattle Co. Well
March 8, 2004

TO: Michael Foley, Director  
Department of Planning  
County of Maui

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

SUBJECT: Well Construction/Pump Installation Permit Application  
Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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 March 22, 2004. 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.

Contact Person: ___________________ Phone: __________

Signed: _____________________________ Date: __________
March 8, 2004

TO: George Tengan, Director
    Department of Water Supply
    County of Maui

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

SUBJECT: Well Construction/Pump Installation Permit Application
         Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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 March 22, 2004. 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.

Clip(s)
Attachment(s)

RESPONSE:

[ ]

Contact Person: ___________________________ Phone: ________________

Signed: ___________________________ Date: ___________________________
March 8, 2004

TO: Holly McEldowney, Acting Administrator
   Historic Preservation

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

SUBJECT: Well Construction/Pump Installation Permit Application
         Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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

We would appreciate your comments on the captioned application with regard to the
programs, plans, and objectives specific to your division. Please respond by returning this
cover memo form by March 22, 2004. 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:

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

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

[ ] No objections

[ ] Other comments:

Contact Person: ___________________________ Phone: ____________

Signed: ___________________________ Date: ____________
March 8, 2004

TO: Dede Mamiya, Administrator  
    Land Division
FROM: Ernest Y.W. Lau, Deputy Director  
    Commission on Water Resource Management
SUBJECT: Well Construction/Pump Installation Permit Application 
    Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. Please respond by returning this cover memo form by March 22, 2004. 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. __________________________.

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

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

[ ] No objections

[ ] Other comments:

Contact Person: ____________________________ Phone: ______________

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

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

SUBJECT: Well Construction/Pump Installation Permit Application
         Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by March 22, 2004. 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.

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: __________________________________________ Phone: __________________

Signed: __________________________________________ Date: _____________
Dear Mr. Serle:

Well Construction/Pump Installation Permit Application for Well Nos. 5417-04 and 5416-01

We acknowledge receipt, on February 12, 2004, of your completed Well Construction/Pump Installation permit application and filing fee for the Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01). You can expect your application to be processed within ninety (90) days from this date.

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

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

Sincerely,

ERNEST Y.W. LAU
Deputy Director

Cl: ss

c: Wailani Drilling, Inc.
<table>
<thead>
<tr>
<th>FROM: CHARLEY</th>
<th>DATE: 17-Feb-04</th>
<th>SUSPENSE DATE: 24-Feb-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO: BAKER, G.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FUJII, N.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HARDY, R.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIGA, D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIRANO, E.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICE, C.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMATA, R.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JINNAI, R.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KUNIMURA, I.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE:**

1. Review & Comment
2. Take Action
3. Approval
4. Signature
5. Type Draft acknow letter
6. Type Final, label new file folder
7. File
8. Xerox copies

WELL NUMBERS: 1: 5447-04   WELL NAME: Kaupakulua - JNRCS 1 & 2

Kaupalaha JNRCS 1 & 2

FT WELL CONSTRUCTION            PUMP INSTALLATION         BOTH

ATTACHMENTS FOR APPLICATION PROCESSING - Both applicant & staff generated

1. TRANS. LETTER
2. CWRM MAP
3. APPL. FORM (5Copies)
4. USGS MAPS (5 COPIES)
5. TAX MAPS (6 COPIES)
6. PARCEL OWNER VERIF.  MLS PRINTOUT
7. CONTRACTOR VERIF.  DCCA LICENSE SCREEN PRINTOUT
8. ALL INFO FILLED IN
9. BACKGROUND CHECK
10. $25 FEE DEPOSIT SLIP
11. DHP, SMA, EA check

FOLDER: MADE NEW FILE FOLDER, ATTACHED

FILE FOLDER ALREADY MADE, IN FILE CABINET

INCOMPLETE ACTION DATES:

<table>
<thead>
<tr>
<th>DATE</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>little high for domestic 27 Feb 40K for each or for both? Both parcels to be subdivided - ea w/pump.</td>
</tr>
<tr>
<td></td>
<td>WUP required before pump installation permit can be accepted. Haiku Aquifer</td>
</tr>
</tbody>
</table>


Return Receipt Fax Memo

Charley,

Enclosed are the following items:

- W.C. Permit application for JNCRS #1 (5 copies)
- W.C. Permit application for JNCRS #2 (5 copies)
- W.C. Permit application for Koolau Cattle Co. (5 copies)
- USGS and TMK maps
- $75.00 check for 3 applications

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, Michael Robertson
March 8, 2004

TO: Dede Mamiya, Administrator
   Land Division

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

SUBJECT: Well Construction/Pump Installation Permit Application
Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. Please respond by returning this cover memo form by March 22, 2004. 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.

Class: Attachment(s)

RESPONSE:

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

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

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

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

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

[ ] No objections

[ ] Other comments:

Original source of private title id Grant 3430:2 issued prior to Statehood.

Contact Person: Cary Martin Phone: 587-0421

Signed: MAR 15 2004
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
March 8, 2004

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

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

SUBJECT: Well Construction/Pump Installation Permit Application
         Kaunakakai-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by March 22, 2004. 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.

C: ss
Attachment(s)

RESPONSE:

1. This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, Rules Relating to Potable Water Systems, §11-23-29.

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 owner must test for microbiological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.

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

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

5. For the applicant's information, a source of possible wastewater contamination [ ] is 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.

No comments/objections

Contact Person: Alec Wong
Phone: 586-4309

Signed: Alec Wong
Date: 3/16/04
March 8, 2004

TO: Honorable Chiyome L. Fukino, M.D., Director
Department of Health

Attention: Harold Yee, Wastewater Branch
William Wong, Safe Drinking Water Branch
Dr. Keith Kawaoka, Hazardous Evaluation and Emergency Response
Alec Wong, Clean Water Branch

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

SUBJECT: Well Construction/Pump Installation Permit Application
Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by March 22, 2004. 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.

Class: 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: Lori N. Kajiwara
Phone: 587-0394

Signed: Lori N. Kajiwara
Date: 3-19-2004
March 8, 2004

TO: Michael Foley, Director
Department of Planning
County of Maui

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

SUBJECT: Well Construction/Pump Installation Permit Application
Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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 March 22, 2004. 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.

State Land Use District: Agricultural
Paia- Haiku Town Planning District: Agricultural
Zoning: Agricultural
Special Management Area: Located outside

The proposed use are allowed in both the State Land Use Agricultural District & the County Agricultural Zoning District.

Contact Person: Rody Loudermilk
Phone: 270-7735

Signed: Peter T. Young
Date: 03/08/04
FACSIMILE TRANSMISSION COVER SHEET

DATE: 3/18/04
TO: DLNR-Com. on Water Resource Mgmt.
TELEPHONE NO.: 587-0251  FACSIMILE NO.: 587-0219
FROM: Planning Dept. MAW: RU: 0
NO. OF PAGES (INCLUDING COVER SHEET): 2

REMARKS OR SPECIAL INSTRUCTIONS:

MAUI COUNTY CODE IS AVAILABLE ON THE INTERNET
www.co.maui.hi.us

If you do not receive all pages or if there is a problem with this transmittal, please call (808) 270-7735. Our facsimile number is (808) 270-7634.

planning@co.maui.hi.us

250 SOUTH HIGH STREET, WAILUKU, MAUI, HAWAII 96793
PLANNING DIVISION (808) 270-7735; ZONING DIVISION (808) 270-7253; FACSIMILE (808) 270-7634
<table>
<thead>
<tr>
<th>FROM:</th>
<th>ERNIE</th>
<th>DATE:</th>
<th>MAR 18 2004</th>
<th>SUSPENSE DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO:</td>
<td></td>
<td>INIT:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ANAKALEA, P.</td>
<td></td>
<td>LAU, E.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BAUER, G.</td>
<td></td>
<td>MATHIAS, T.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHING, F.</td>
<td></td>
<td>NAKAMA, L.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DANBARA, S.</td>
<td></td>
<td>NAKANO, D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FUJII, N.</td>
<td></td>
<td>OHYE, M.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GOODING, K.</td>
<td></td>
<td>SAKODA, E.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HARDY, R.</td>
<td></td>
<td>SUBIA, S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HIGA, D.</td>
<td></td>
<td>SWANSON, S.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ICE, C.</td>
<td></td>
<td>UYENO, D.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMATA, R.</td>
<td></td>
<td>YODA, K.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>KUNIMURA, I.</td>
<td></td>
<td>YOSHINAGA, M.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TO:</td>
<td></td>
<td>INIT:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LAU, E.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATHIAS, T.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAKAMA, L.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAKANO, D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OHYE, M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SAKODA, E.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBIA, S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SWANSON, S.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UYENO, D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YODA, K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>YOSHINAGA, M.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FOR:</td>
<td></td>
<td></td>
<td>Approval</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Signature</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Information</td>
<td></td>
</tr>
<tr>
<td>PLEASE:</td>
<td></td>
<td></td>
<td>See Me</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Review &amp; Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Take Action</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type Draft</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Type Final</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>File</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Xerox ___ copies</td>
<td></td>
</tr>
</tbody>
</table>
Charley,

We need to request for additional review time on these applications. Comments on Kaupakalua Well will be submitted within this week. For Piiholo well, the dept has yet to meet with the applicant to discuss the project.

Thanks,
Edna
Memo to George Y. Tengan, Director
March 18, 2004
Page 2

MWF:RLL:do
c: Clayton I. Yoshida, AICP, Planning Program Administrator
Robyn L. Loudermilk, Staff Planner
Aaron Shinmoto, Planning Program Administrator (2)
Commission on Water Resource Management
General File
K:\WP\DOCS\PLANNING\LETTERS\ltr2004\0970_JNRSWells.wpd
MEMO TO: George Y. Tengan, Director  
Water Department

ATTN: Edna Manzano  
Water Resource Planner

FROM: Michael W. Foley, Director  
Planning Department

SUBJECT: KAUPAKALUA - JN & RS WELLS 1 & 2 (WELLS NOS. 5417-04 & 5416-01)

The Planning Department (Department) has reviewed the subject request and has the following comments to offer:

1. The proposed project is located on lands designated as Agricultural by the State Land Use Commission. The proposed use is an allowable use in this designation.

2. The proposed project is located on lands designated Agricultural by the Paia-Haiku Community Plan.

3. The proposed project is located on lands zoned Agricultural. The proposed use is an allowable use in the zoning district.

4. The proposed project is located outside of the Special Management Area.

Thank you for the opportunity to comment. If additional clarification is required, please contact Ms. Robyn Loudermilk, Staff Planner of this office at 270-7735.
While the proposed well does not have immediate effect on any existing DWS wells, there are several private wells in the zone of influence. The proximity of the proposed well to existing wells could conceivably present potential conflict in use. This conflict depends on pumpage, drawdown and aquifer status. Attached is a map showing the location private wells and DWS future well sites in the zone of influence.

Conservation

We encourage the applicant to consider the following water conservation measures:

- **Utilize Low-Flow Fixtures and Devices:** Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice makers, and other units are also available.
- **Maintain Fixtures to Prevent Leaks:** A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip."
- **Use Climate-adapted Plants:** The project site is located in the "Maui County Planting Plan" - Plant Zone 1. Please refer to the attached documents "Saving Water in the Yard". Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species.

Groundwater Protection

In order to protect groundwater resources, we encourage the applicant to adopt Best Management Practices (BMPs) designed to minimize infiltration and runoff from daily activities. Sample BMPs are as enumerated below.

1. Inspect exposed parts of the well periodically for problems such as: cracked or corroded well casing, broken or missing well cap, damage to protective casing, settling and cracking of surface seals.
2. Slope the area around the well so that surface runoff drains away from the well.
3. Provide a well cap or sanitary seal to prevent unauthorized use of or entry into the well.
4. Provide for sediment removal or well cleaning as necessary.
5. Have the well tested once a year for fecal coliform or other constituents that may be of concern.
6. Keep accurate records of any well maintenance, such as disinfection or sediment removal, that might require use of chemicals in the well.
7. Avoid mixing or using pesticides, fertilizers, herbicides, degreasers, fuels, or other pollutants near the well.
8. Do not locate any type of potentially polluting activity up slope from the well.

Should you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

George F. A. Jangal
Director

cc: Engineering Division
Applicant, with attachments

The Costly Drip
Maui County Planting Plan - Plant Zone 1 - What and How to Plant in your Area
Ordinance 2106-A Bill for an Ordinance Amending Chapter 18.20 of the Maui County Code Pertaining to the Plumbing Code
March 24, 2004

Mr. Peter T. Young, Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
P O Box 821  
Honolulu Hi 96809

Subject: Well Construction/Pump Installation Permit Application  
Kaupakalua - JN & RS Wells 1 & 2 (Well Nos. 5417-04 & 5416-01)  
TMK: (2) 2-8-002:012

Dear Mr. Young:

Thank you for the opportunity to provide comments on this application.

Zoning Compliance

The property is designated Agricultural by the State Land Use Commission, Paia-Haiku Community Plan, and County zoning. The proposed use is an allowed use under this land use designation. The project site is located outside of the Special Management Area.

Aquifer Status and Proposed Amount of Withdrawal

The project is served by Haiku Aquifer. This aquifer has a sustainable yield of 31 MGD. The 31 MGD estimate is based on initial hydrological conditions before the capture of perched water by the ditch system. According to the 1990 State Water Resources Protection Plan, a more conservative estimate is 15 MGD.

DWS anticipates the need for additional wells in the Haiku aquifer in the future. The approved 1990 Water Use and Development Plan (WUDP) mentions wells in the Haiku aquifer, as does our draft 1992 WUDP which received Board approval. Therefore, we request that CWRM be cognizant not to grant approvals where this might create difficulty in meeting municipal needs.

A 6-inch DWS waterline borders the southernmost part of the parcel. DWS has concerns about the proliferation of private systems within the department’s service area. It appears that this well site maybe properly situated for connection with the public system and we suggest that the applicants discuss this possibility with DWS prior to drilling. In addition, we suggest that the applicant be required to report monthly pumpage to DWS as well as the Commission on Water Resource Management (CWRM).

The applicant proposes to withdraw a total of 80,000 GPD from both wells for domestic use. This is about 20% higher than the State Water System Standard guidelines for property this size. According to the applicant, they are planning to subdivide the property. The applicant should be aware that private systems serving more than 25 people over 60 days of the year are subject to the Department of Health regulations including rigorous testing and monitoring.

"By Water All Things Find Life"
TO: George Tengan, Director  
Department of Water Supply  
County of Maui

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

SUBJECT: Well Construction/Pump Installation Permit Application  
Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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 March 22, 2004. 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.

Clss
Attachment(s)

RESPONSE:

[ ] Attached (Original to follow)

Contact Person: Ellen Kraftsow/E Mansano  
Phone: 270-7199

Signed: [Signature]  
Date: 3/29/04
While the proposed well does not have immediate effect on any existing DWS wells, there are several private wells in the zone of influence. The proximity of the proposed well to existing wells could conceivably present potential conflict in use. This conflict depends on pumpage, drawdown and aquifer status. Attached is a map showing the location private wells and DWS future well sites in the zone of influence.

**Conservation**

We encourage the applicant to consider the following water conservation measures:

- **Utilize Low-Flow Fixtures and Devices**: Maui County Code Subsection 16.20A.680 requires the use of low-flow water fixtures and devices in faucets, showerheads, urinals, water closets and hose bibs. Water conserving washing machines, ice makers, and other units are also available.

- **Maintain Fixtures to Prevent Leaks**: A simple, regular program of repair and maintenance can prevent the loss of hundreds or even thousands of gallons a day. Refer to the attached handout, "The Costly Drip."

- **Use Climate-adapted Plants**: The project site is located in the "Maui County Planting Plan" - Plant Zone 1. Please refer to the attached documents “Saving Water in the Yard”. Native plants adapted to the area, conserve water and further protect the watershed from degradation due to invasive alien species.

**Groundwater Protection**

In order to protect groundwater resources, we encourage the applicant to adopt Best Management Practices (BMPs) designed to minimize infiltration and runoff from daily activities. Sample BMPs are as enumerated below.

1. Inspect exposed parts of the well periodically for problems such as: cracked or corroded well casing, broken or missing well cap, damage to protective casing, settling and cracking of surface seals.
2. Slope the area around the well so that surface runoff drains away from the well.
3. Provide a well cap or sanitary seal to prevent unauthorized use of or entry into the well.
4. Provide for sediment removal or well cleaning as necessary.
5. Have the well tested once a year for fecal coliform or other constituents that may be of concern.
6. Keep accurate records of any well maintenance, such as disinfection or sediment removal, that might require use of chemicals in the well.
7. Avoid mixing or using pesticides, fertilizers, herbicides, degreasers, fuels, or other pollutants near the well.
8. Do not locate any type of potentially polluting activity up slope from the well.

Should you have any questions, please call our Water Resources and Planning Division at 270-7199.

Sincerely,

[Signature]

George Y. Pangan

Director

c: Engineering Division
Applicant, with attachments

The Costly Drip
Maui County Planting Plan - Plant Zone 1 - What and How to Plant in your Area
Ordinance 2108-A Bill for an Ordinance Amending Chapter 16.20 of the Maui County Code Pertaining to the Plumbing Code
March 24, 2004

Mr. Peter T. Young, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P O Box 621
Honolulu HI 96809

Subject: Well Construction/Pump Installation Permit Application
Kaupakalua - JN & RS Wells 1 & 2 (Well Nos. 5417-04 & 5416-01)
TMK: (2) 2-8-002:012

Dear Mr. Young:

Thank you for the opportunity to provide comments on this application.

Zoning Compliance

The property is designated Agricultural by the State Land Use Commission, Paia-Haiku Community Plan, and County zoning. The proposed use is an allowed use under this land use designation. The project site is located outside of the Special Management Area.

Aquifer Status and Proposed Amount of Withdrawal

The project is served by Haiku Aquifer. This aquifer has a sustainable yield of 31 MGD. The 31 MGD estimate is based on initial hydrological according conditions before the capture of perched water by the ditch system. According to the 1990 State Water Resources Protection Plan, a more conservative estimate is 15 MGD.

DWS anticipates the need for additional wells in the Haiku aquifer in the future. The approved 1990 Water Use and Development Plan (WUDP) mentions wells in the Haiku aquifer, as does our draft 1992 WUDP which received Board approval. Therefore, we request that CWRM be cognizant not to grant approvals where this might create difficulty in meeting municipal needs.

A 6-inch DWS waterline borders the southernmost part of the parcel. DWS has concerns about the proliferation of private systems within the department's service area. It appears that this well site maybe properly situated for connection with the public system and we suggest that the applicants discuss this possibility with DWS prior to drilling. In addition, we suggest that the applicant be required to report monthly pumpage to DWS as well as the Commission on Water Resource Management (CWRM).

The applicant proposes to withdraw a total of 80,000 GPD from both wells for domestic use. This is about 20% higher than the Statewide Water System Standard guidelines for property this size. According to the applicant, they are planning to subdivide the property. The applicant should be aware that private systems serving more than 25 people over 60 days of the year are subject to the Department of Health regulations including rigorous testing and monitoring.

"By Water All Things Find Life"
March 8, 2004

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

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

SUBJECT: Well Construction/Pump Installation Permit Application
Kaupakulua-JN & RS Wells 1 & 2 (Well Nos. 5417-04 and 5416-01)

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

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by March 22, 2004. 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.

Class 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, §11-30-29.

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 15 service connections) and if the well is used for drinking, the private owner should test for bacteriological and chemical presence before initial 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 prevention, 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.

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 [yes] 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: William Wong
Phone: 586-4250

Signed: William Wong
Date: MAR 31 2004
FROM: CHARLEY  DATE: 08 April 04  SUSPENSE DATE: 

<table>
<thead>
<tr>
<th>TO:</th>
<th>INIT.</th>
<th>TO:</th>
<th>INIT.</th>
<th>FOR:</th>
<th>PLEASE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAUER, G.</td>
<td></td>
<td></td>
<td></td>
<td>3 Approval</td>
<td>See Me</td>
</tr>
<tr>
<td>CHING, F.</td>
<td></td>
<td></td>
<td></td>
<td>3 Signature</td>
<td>Review &amp; Comment</td>
</tr>
<tr>
<td>DANBARA, S.</td>
<td></td>
<td></td>
<td></td>
<td>4 Information</td>
<td>Take Action</td>
</tr>
<tr>
<td>FUJI, N.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Draft</td>
</tr>
<tr>
<td>GOODING, K.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Final</td>
</tr>
<tr>
<td>HARDY, R.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Draft</td>
</tr>
<tr>
<td>HIGA, D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Final</td>
</tr>
<tr>
<td>HIRANO, E.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Final</td>
</tr>
<tr>
<td>ICE, C.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Final</td>
</tr>
<tr>
<td>IMATA, R.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Final</td>
</tr>
<tr>
<td>JINNAI, R.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Type Final</td>
</tr>
</tbody>
</table>

**WELL NUMBER**: 5417-04, 5416-05  **WELL NAME**: JN & RS Wells 1 & 2

**WELL CONSTRUCTION**

**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 ✔
11. WELL CHECK PRINTOUT ✔

**TO BE SENT TO APPLICANT**

**FOR OFFICE USE ONLY**

**PUMP INSTALLATION**

**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
11. GLENN'S WORKSHEET

**TO BE SENT TO APPLICANT**

**FOR OFFICE USE ONLY**

*should we add the NEWS comments? good idea (all comments to be sent)*
WELL CONSTRUCTION PERMIT

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 JN & RS Wells 1 & 2 (Well No. 5417-04) at Ulumalu, Makawao, Maui, TMK 2-8-2:12, subject to the Hawaii Well Construction & Pump Installation Standards (February 2004) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-14, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum 11/4-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 (February 2004; 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 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: April 2, 2004
Expiration Date: April 2, 2006

PETER T. YOUNG, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the 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
   State of Hawaii Department of Water Supply
   Wailani Drilling, Inc.
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.

Sincerely,

Peter T. Young
Chairperson

Enclosures

c: Wailani Drilling, Inc.
Ref: 5417-04.wcp

Mr. Ron Serle  
JN & RS LLC  
1879 Olinda Road  
Makawao, HI 96768  

Dear Mr. Serle:

Well Construction Permit  
JN & RS Wells 1 & 2 (Well No. 5417-04)

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. Also attached are comments of Maui Department of Water Supply, indicating a projected level of use higher than the county guideline, and a request that the system be compatible with the county system, as it is within connecting distance of their system.

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 (February 2004) 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."

April 12, 2004
Therefore, in order to determine the effect of the proposed undertaking on historic sites, we recommend that no action be taken on the proposed undertaking until an archaeological inventory survey has been conducted to determine whether significant historic sites are present. An acceptable report documenting the findings of the survey will need to be submitted to this office for review. If significant historic sites are identified, a mitigation plan may need to be developed, in consultation with this office, and executed.

If you have any questions, please call Cathleen A. Dagher at 692-8023.

CD:jen

c: Michael Foley, Director, Dept of Planning, 250 South High Street, Wailuku, HI 96793
Cultural Resources Commission, Planning Dept, 250 S. High Street, Wailuku, HI 96793
Chair, Maui/Lana'i Islands Burial Council
Kana'i Kapeliela, Burial Sites Program
Thank you for the opportunity to review and comment on the Well Construction/Pump Installation Permit Application for the Proposed Kaupakalua JN & RS Wells 1 & 2, which was received by our staff March 15, 2004. Our review is based on reports, maps, and aerial photographs maintained at the State Historic Preservation Division; no field inspection was conducted of the subject property.

We have previously provided comments for the Preliminary Plat Review for the Proposed land Court Application 960 (SHPD DOC NO.: 0312CD17/LOG NO.: 2003.2569). At that time we recommended that no action be taken on the subject subdivision permit application until an archaeological inventory survey had been conducted of the area potential of impact. To date we have not received the archaeological report documenting the findings of the inventory survey. Thus, these comments still apply and are paraphrased below.

A search of our records indicates an archaeological inventory survey has not been conducted of the subject property. This area in general is likely to have once been the location of pre-Contact farming, perhaps with scattered houses. Our records indicate the subject property was previously under commercial agriculture. Given that recent archaeological investigations in similar settings have identified historic sites beneath the till zone (including an unmarked cemetery, lithics and historic artifacts) we now believe that historic sites and/or site remnants may be present in the subsurface deposits of the proposed project area.
Again yes too late. Should forward comments though.
FAX: Transmitting 3 pages, including this one; call 587-0251 with any reception problems.

TO: Ron Serle          Date: 4 April 04
FROM: Charley Ice

Transmitting comments from Historic Preservation, FY1. They will appreciate alert consideration of their concerns. Please note Standard Condition #5 of your permit, regarding artifacts and remains.

Return Fax: 587-0219
Return Post: P.O.Box 621, Honolulu 96809
WELL CONSTRUCTION PERMIT
JN & RS Wells 1 & 2, Well No. 5417-04

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

In accordance with the Hawaii Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of JN & RS Wells 1 & 2 (Well No. 5417-04) at Ulummal, Makawao, Maui, TMK 2-8-2:12, subject to the Hawaii Well Construction & Pump Installation Standards (February 2004) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-166-15, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum 1-in. diameter monitor tube shall be permanently installed in a manner acceptable to the Chairperson, to accurately record water levels. The permittee, well operator, and/or well owner shall coordinate with the Chairperson and conduct a pumping test in accordance with the Standards (a pumping test worksheet is attached). The permittee, well operator, and/or well owner shall submit 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 natural surface or established streamflow 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 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 (February 2004; 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 §13-166-12(3) 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: April 2, 2004
Expiration Date: April 2, 2006

PETER T. YOUNG, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the 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] Date: [Signature Date]
Printed Name: [Printed Name] Firm or Title: [Firm or Title]

Driller's Signature: [Signature] C-57 License #: [License Number] Date: [Date]
Printed Name: [Printed Name] Firm or Title: [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
   Water Drilling, Inc.
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 JN & RS Wells 1 & 2 (Well No. 5417-04) at Ulumalu, Makawao, Maui, TMK 2-8-2, subject to the Hawaii Well Construction & Pump Installation Standards (February 2004) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 921, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum 14-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 (February 2004; 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 §13-168-15(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: April 2, 2004
Expiration Date: April 2, 2006

PETER T. YOUNG, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed and understand that I shall not commence work until I and the 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: [Name]
Driller’s Signature: [Signature]
Printed Name: [Name]

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.
April 24, 2006

Mr. Michael Robertson
Wailani Drilling, Inc.
1885 Main Street 408
Wailuku, HI 96793

Dear Mr. Robertson:

Extension of Well Construction Permit
Kaupakulua JN & RS Wells 1 & 2 (Well Nos. 5417-04 & 5416-01)

Thank you for confirming our April 6, 2006 inquiry about extending the captioned permit. By this letter, we approve an extension to the end of this year. The new expiration date for both wells is December 2, 2006. If the work cannot be done within that period, you may reapply at any time with no penalty or prejudice.

All other conditions for this permit remain the same. Please keep a copy of this letter filed with the original permit.

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

Sincerely,

DEAN A. NAKANO
Acting Deputy Director

Ci: ss
FAX: Transmitting 1 pages, including this one; call 587-0251 with any reception problems.

TO:       Mike Robertson                Date:  30 Nov 06
FROM:     Charley Lee

Several well construction permits are expiring soon. Please provide updated status:

2 Dec 06  J&D RS (5417-04 x 5416-01) Need Survey

2 Dec 04  Bu'aino (5424-12) do

12 Dec  2004  Ke'Akulii 3 & 2 (4324-12) do — need survey
           St. Theresa (4527-16)  Not dilled pending

18 Dec  2004  Keauha-Kona (5519-05) do

20 Dec  2004  Keauhoku (4524-01) do

24 Dec  2004  Kiilau-Jones (5519-04) Not dilled

Please extend all for 6 more months

Return Fax: 587-0219
Return Post: P.O.Box 621, Honolulu 96809
Michael Robertson  
Wailani Drilling, Inc.  
1885 Main Street, Suite 408  
Wailuku HI 96793

Dear Mr. Robertson:

Extension of Well Construction Permit  
Kaupakulua JN & RS Wells 1 & 2 (Well Nos. 5417-04 & 5416-01)

Thank you for confirming our November 30, 2006 inquiry about extending the captioned permit. By this letter, we approve an extension of six months. The new expiration date for both wells is June 2, 2007. If the work cannot be done within that period, you may reapply at any time with no penalty or prejudice.

All other conditions for this permit remain the same. Please keep a copy of this letter filed with the original permit.

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

Sincerely,

DEAN A. NAKANO  
Acting Deputy Director

CI:ss
Geographic Coordinates:
Lat. 20° 54' 25.14" N
Long. 156° 16' 50.76" W

PLOT PLAN
(Provide Latitude and Longitude of well referenced to NAD27 to nearest second)

Well Elevations

Benchmark Elevation 844.46
(0.01 ft above sea level)

Concrete Pad

Benchmark reference control point
USGS Trig. Station "KULOLI-2"
NGVD 1927 Datum

Surveyor's stamp and signature

Edgardo V. Valera
Licensed Professional Land Surveyor
State of Hawaii Cert. 5076

NGVD 1927 Datum
<table>
<thead>
<tr>
<th>Suggested elapsed time (min)</th>
<th>Actual elapsed time (min)</th>
<th>Depth to water (unadjusted to nearest 0.1 ft)</th>
<th>Drawdown S</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (μS/cm)</th>
<th>Temp. °F</th>
<th>Cl (mg/l)</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td></td>
<td>837.68</td>
<td>1.13</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td></td>
<td>1.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>837.69</td>
<td>1.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td>837.70</td>
<td>1.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td>837.71</td>
<td>1.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250</td>
<td></td>
<td>837.72</td>
<td>1.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>837.73</td>
<td>1.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400</td>
<td></td>
<td>837.73</td>
<td>1.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50 G=9.1 Cl sample taken</td>
</tr>
<tr>
<td>500</td>
<td>480</td>
<td>837.2</td>
<td>1.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Max possible duration, water level or quality did not stabilize for any 24 period</td>
</tr>
</tbody>
</table>

**Remarks**

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

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: 23,142.2 gals
CONSTANT-RATE PUMP TEST DATA

Pumped Well No. 5417-04
Pumped Well Name IN & RS Well 1
Target Q 65 gpm

Observation Well No. NA
Distance between Obs. & Pumped Well ft.
Reference pt. for depth to water ft. msl

Water level measurements by: ☑ electrical sounder ☐ pressure transducer ☐ airline
Static Water Level @ start of test 7.9 ft. msl

START TEST Date: 10/8/06 Time of day: 800

Flow Meter Reading Start: 5 gallons

<table>
<thead>
<tr>
<th>Suggested elapsed time</th>
<th>Actual elapsed time</th>
<th>Depth to water (nearest 0.1 ft)</th>
<th>Drawdown S (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (µmhos)</th>
<th>Cl (mg/l)</th>
<th>Temp. °F</th>
<th>Date in this table is for:</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>836.55</td>
<td>0.00</td>
<td>48</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>837.80</td>
<td>1.26</td>
<td></td>
<td>50</td>
<td>69</td>
<td></td>
<td></td>
<td>Start pump/Cl' taken</td>
</tr>
<tr>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>837.80</td>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>837.79</td>
<td>1.29</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>837.77</td>
<td>1.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
13. AS-BUILT WELL SECTION (Please attach as-built if different from diagram provided below)

Elevation at top of casing 6,01 ft. msl
(to nearest 0.01 ft.)

Hole Diameter: 12.5 in.

Minimum of 2' Radius & 4" Thick Concrete Pad

Ground Elevation: 83.46 msl

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

Cement Grout: 300 ft.
(min. 70% of distance from ground elevation to top of water surface or 500 ft., whichever is less)

Annular space between hole and casing (min.3):
2 ft. in.

Rock or Gravel Packing:
81 ft.
Material:
□ Crushed Basalt
□ Rounded Gravel

Water Level Elevation:
8.07 ft. msl

Total Depth:
67 ft.

Solid Casing:
Length: 854 ft.
Nominal Diameter: 6 in.
Wall Thickness: 280 in.
Bottom Elevation: -49.36 ft. msl

Please refer to the
HAWAII WELL CONSTRUCTION AND PUMP INSTALLATION STANDARDS

to ensure that your as-built is in compliance with applicable standards.

Open Casing:
Length: 21 ft.
Nominal Diameter: 4 in.
Wall Thickness: 280 in.
Bottom Elevation: -38.36 ft. msl

Open Hole:
Length: 2 ft.
Diameter: 4 in.
Bottom Elevation: -4 ft. msl

*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 A422 □ 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 C960
□ PTFE Fluorocarbon Tubing conforming to ASTM D3286
□ FEP Fluorocarbon Tubing conforming to ASTM D3286

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 A422 □ 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 C960
□ PTFE Fluorocarbon Tubing conforming to ASTM D3286
□ FEP Fluorocarbon Tubing conforming to ASTM D3286

WCR1 Form 9/12/01 Page 2 of 4
<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 Drawdown S (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (µmhos)</th>
<th>Cl' (mg/l)</th>
<th>Temp. °F or °C</th>
<th>Data in this table is for</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>937.20</td>
<td>1.65</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>937.16</td>
<td>1.61</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>2.5</td>
<td>937.1</td>
<td>1.55</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>936.91</td>
<td>1.41</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>6</td>
<td>936.71</td>
<td>1.36</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>936.59</td>
<td>1.04</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>20</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>25</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>30</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>35</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>40</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>45</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>50</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>55</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>60</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>65</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>70</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>75</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>80</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>85</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>90</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>95</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>100</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>150</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>200</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>250</td>
<td>936.59</td>
<td></td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**END TEST** Date: **10/3/06** Time of day: **4:20 PM**

**ADDITIONAL REMARKS:**

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

**Signature:** 

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.
**DRILLER'S LOG**

**WELL NUMBER:** 5/17-04

<table>
<thead>
<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, etc.</th>
<th>Dates</th>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, etc.</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>26.5 Gypsum 1.40</td>
<td></td>
<td>4815 to 7165</td>
<td>No Circulation</td>
<td></td>
</tr>
<tr>
<td>26.5</td>
<td>Blue Rock 27' Rite 60</td>
<td></td>
<td>4765 to 5145</td>
<td></td>
<td></td>
</tr>
<tr>
<td>57.5</td>
<td>Clay, Stuck Bad Free</td>
<td></td>
<td>5145 to 5265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>76.5</td>
<td>Water 97' Sticky</td>
<td></td>
<td>5265 to 5315</td>
<td></td>
<td></td>
</tr>
<tr>
<td>101.5</td>
<td>Still Soft 10' Blue</td>
<td></td>
<td>5315 to 5375</td>
<td></td>
<td></td>
</tr>
<tr>
<td>126.5</td>
<td>181' HAD TO GRIND AWAY STICKY AIR.</td>
<td></td>
<td>5375 to 6015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>151.5</td>
<td>186' Grey, Dark, Blue</td>
<td></td>
<td>6015 to 6265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>176.5</td>
<td>201' Still Blue, then Clear 80</td>
<td></td>
<td>6265 to 6515</td>
<td></td>
<td></td>
</tr>
<tr>
<td>201.5</td>
<td>2265 All Soft Rock Red</td>
<td></td>
<td>6515 to 6765</td>
<td></td>
<td></td>
</tr>
<tr>
<td>226.5</td>
<td>251' Soft Red, good drilling gray, 725 to 746</td>
<td></td>
<td>6765 to 7015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>251.5</td>
<td>2765 Good Lining, Rolling</td>
<td></td>
<td>7015 to 7265</td>
<td></td>
<td></td>
</tr>
<tr>
<td>276.5</td>
<td>301' Very Fine Bedding</td>
<td></td>
<td>7265 to 7515</td>
<td></td>
<td></td>
</tr>
<tr>
<td>301.5</td>
<td>2665 Rocks, Lost Circulation</td>
<td></td>
<td>7515 to 7765</td>
<td></td>
<td></td>
</tr>
<tr>
<td>326.5</td>
<td>351' No Circulation</td>
<td></td>
<td>7765 to 8015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>351.5</td>
<td>8015 to 8265</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>376.5</td>
<td>8265 to 8515</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>401.5</td>
<td>8515 to 8765, 17lbs pressure on air</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>426.5</td>
<td>8765 to 9015</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>451.5</td>
<td>9015 to 9415</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

Lost Circulation around 250 and never recovered it through many different layers, no matter how much cement was used I could only get a little air flow discharge.

This bore hole blows a considerable amount of air before the cement joint.

WCRI Form 9/1201 Page 3 of 4
1. State Well No.: **5417-04**  
   Well Name: **JN & RS Well 1**  
   Island: **Maui**

2. Address: **Ulimalu, Makawao**  
   Tax Map Key: **2-8-2:12**

3. Drilling Company: **WAILANI DRILLING**

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

5. Date Well Construction (drilled, cased, grouted) completed: **11-17-04**  
   - 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 **836** ft. below ground  
   Date and time of measurement: **11-14-04**

8. Step-Drawdown Test completed?  
   - [ ] Yes  
   - [ ] No
   - Attach Step-Drawdown Test form (12/17/97 SDPTD Form)

9. Constant Rate Aquifer Test completed?  
   - [ ] Yes  
   - [ ] No
   - Attach Constant Rate Aquifer Test form (12/17/97 CRPTD Form)

10. Parameters per or to pump test:  
   - Water-level: **6.07** ft. above msl  
   - Date and time of measurement: **11-17-04**

11. Chloride: **40** ppm  
    Date and time of sampling: **11-17-04**

12. Temperature: **69** °F  
    Date and time of measurement: **11-17-04**

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 **40** gpm at a head of **899** ft.  
   (Attach pump specifications and rating curve)

17. Remarks: **We waited for Survey all day time for final El**

---

**Licensed Driller** (print) **MICHAEL ROBERTSON**  
C-57 Lc. No. **20115**

Signature  
**Michael Robertson**  
Date **3/17/07**

**Permittee** (print) **Howard Saito JHPE**

Signature  
**Howard Saito JHPE**  
Date **1/5/07**
Aloha Charley,

Thank you for getting back to me. Our records had shown this was mailed out on 02/08/07 but obviously didn't quite make it there! Please find the attached well report for your review. Please let me know if there are other things that you need for this.

Mahalo,

Nicole
WAILANI DRILLING, INC.
**COMMISSION ON WATER RESOURCE MANAGEMENT**

<table>
<thead>
<tr>
<th>FROM: ROY</th>
<th>DATE: MAR 16 2007</th>
<th>SUSPENSE DATE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>TO: ANAKALEA, P.</td>
<td>INIT.</td>
<td>TO: KIMURA, J.</td>
</tr>
<tr>
<td>TO: CHING, F.</td>
<td>INIT.</td>
<td>TO: KUNIMURA, I.</td>
</tr>
<tr>
<td>TO: CHONG, R.</td>
<td>INIT.</td>
<td>TO: NAKAMA, L.</td>
</tr>
<tr>
<td>TO: DANBARA, S.</td>
<td>INIT.</td>
<td>TO: OHYE, M.</td>
</tr>
<tr>
<td>TO: ENGLAND, D.</td>
<td>INIT.</td>
<td>TO: SAKODA, E.</td>
</tr>
<tr>
<td>TO: FUJII, N.</td>
<td>INIT.</td>
<td>TO: SWANSON, S.</td>
</tr>
<tr>
<td>TO: HARDY, R.</td>
<td>INIT.</td>
<td>TO: UYENO, D.</td>
</tr>
<tr>
<td>TO: HOAGBIN, S.</td>
<td>INIT.</td>
<td>TO: YODA, K.</td>
</tr>
<tr>
<td>TO: ICE, C.</td>
<td>INIT.</td>
<td>TO: YOSHINAGA, M.</td>
</tr>
<tr>
<td>TO: IMATA, R.</td>
<td>INIT.</td>
<td></td>
</tr>
</tbody>
</table>

* still missing signed WP for other well 5416
* ple enter pump data.
NOAA/NOS/CO-OPS
Verified Water Level vs. Predicted Plot
1615680 Kahului, HI
from 2006/10/08 - 2006/10/08

Height (Feet relative to MLLW)

Date/Time (GMT)

Predicted WL — (Obs-Pred) X Observed WL +

Data obscured by tidal influence!

Cooper-Jacob Method

Time since pumping began, t, (min)

\[ t_o = 1,000.00 \text{ minute where red line crosses x-axis} \]
\[ \delta s = 0.02 \text{ ft. drawdown over 1 log cycle} \]
\[ r = 0.50 \text{ ft. dist. to obs well used for water levels} \]

\[ T = 84,700 \text{ ft}^3/\text{day transmissivity} \]
\[ 633,600 \text{ gpd/ft} \]

\[ S = 528,000 \text{ storage coefficient: dimensionless} \]
\[ u = 56.104 \text{ must be <0.05 to avoid large errors} \]
MEMO and ROUTE SLIP (ver. 3/15/07) 03/20/07

WCR 1 Check for Well No. 5417-04 (survey to regulation memo)

1. **Pump Tests Check** Roy Hardy (initial)
   - **Step-Drawdown Test:**
     - followed WCPI Stds
     - analysis attached
     - proposed pump cap o.k.
     - Yes No
   - **Aquifer Pump Test:**
     - followed WCPI Stds
     - T & S analysis attached
     - Yes No
   - **Well Interference:**
     - estimated Steady-State drawdown at 1-mile radius is ________ ft.
     - analysis attached
     - Data observed by tidal influence
   - **Stream Surface Water Impacted:**
     - Yes No
   - **If yes, identify most probable stream**

2. **Well Log Check** Geology Code for Well Index: J. Kimura or D. England (initial)

3. **Construction Check** Mitch Ohye (initial)
   - data complete
   - followed Special Cond & elevations
   - well database updated
   - Yes No
   - Latitude
   - Longitude
   - NAD27
   - NAD83

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

ATTFACHMENTS FOR PUMP INSTALLATION PERMIT (2x):
- 1COVER LETTER
- 2COUNTY COMMENTS (DWS/SMA)
- 3DOH COMMENTS
- 4DLNR COMMENTS (LDI/OCL/DHP)
- 5WCR 1 Accept
- 6WELL CONST. COMPLETION CERTIFICATE
- 7USGS MAP UPDATED
- 8PARCEL CHECK
- 9WELL DATABASE INPUT CHECK
- 10GLENNS PUMP TEST WORKSHEET
- 11WELL A-BUILT CHECK PRINT

not necessary – only WCP or BOTH.

To be sent to driller/pump installer

To Landowner

Staff internal checks

5. Roy (initial) check (Entered WCR 1/WCCC accept date into database)
6. Susan Hoagbin (initial) finalize
7. Mitch (initial) signature (Entered PIP issue date if required)
8. Charley Lenore/Ryan File
Well Elevation

Benchmark Elevation 844.46
(0.01 ft. above msl)

Concrete Pad

Benchmark Reference Control Point
USGS Trig. Station "KULOLI-2"
NGVD 1927 Datum

PLOT PLAN

(Provide Latitude and Longitude of well referenced to NAD83 to nearest second)

Edgardo V. Valera
Licensed Professional Land Surveyor
State of Hawaii Cert. 5078

[Signature]

WCR1 Form 9/1201 Page 4 of 4
<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 Drawdown S (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>Data in this table is for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>37.20</td>
<td>37.20</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Start recovery</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1</td>
<td>37.18</td>
<td>37.18</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>2</td>
<td>37.1</td>
<td>37.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>4</td>
<td>36.94</td>
<td>36.94</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>6</td>
<td>36.91</td>
<td>36.91</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>8</td>
<td>36.9</td>
<td>36.9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>36.7</td>
<td>36.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>12</td>
<td>36.6</td>
<td>36.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>36.5</td>
<td>36.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>16</td>
<td>36.4</td>
<td>36.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>18</td>
<td>36.3</td>
<td>36.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>20</td>
<td>36.2</td>
<td>36.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>22</td>
<td>36.1</td>
<td>36.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>24</td>
<td>36.0</td>
<td>36.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>26</td>
<td>35.9</td>
<td>35.9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>32</td>
<td>35.8</td>
<td>35.8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td>42</td>
<td>35.7</td>
<td>35.7</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>52</td>
<td>35.6</td>
<td>35.6</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>62</td>
<td>35.5</td>
<td>35.5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td>72</td>
<td>35.4</td>
<td>35.4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>82</td>
<td>35.3</td>
<td>35.3</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td>92</td>
<td>35.2</td>
<td>35.2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>104</td>
<td>35.1</td>
<td>35.1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>154</td>
<td>35.0</td>
<td>35.0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td>204</td>
<td>34.9</td>
<td>34.9</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>250</td>
<td>254</td>
<td>34.8</td>
<td>34.8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**END TEST** Date: 10/3/06  Time of day: 4:20 PM

**ADDITIONAL REMARKS:**

Person in charge of pump test (print): Michael Robertson

Signature: ________________

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>
<thead>
<tr>
<th>Suggested elapsed time (min)</th>
<th>Actual elapsed time (min)</th>
<th>Depth to water (unadjusted to nearest 0.1 ft)</th>
<th>Drawdown S (nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (μmhos)</th>
<th>CI' (mg/l)</th>
<th>Temp. °F °C or °C</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>80</td>
<td></td>
<td>837.68</td>
<td>1.13</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90</td>
<td></td>
<td></td>
<td>1.13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>837.69</td>
<td>1.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td>837.70</td>
<td>1.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td>837.71</td>
<td>1.16</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250</td>
<td></td>
<td>837.72</td>
<td>1.17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td>1.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>500</td>
<td>480</td>
<td>837.2</td>
<td>.65</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>600</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>700</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>900</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>2500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>3000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>4000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>5000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>6000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>7000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>8000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>9000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
<tr>
<td>10000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1 CI sample taken</td>
<td></td>
</tr>
</tbody>
</table>

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: 23,142.2 gals

1 Chloride sampling required
2 Use same ending drawdown figure as start for recovery
### CONSTANT-RATE PUMP TEST DATA

**Pumped Well No.** 5417-04  
**Observation Well No.** NA  
**Pumped Well Name** JN & RS Well 1  
**Distance between Obs. & Pumped Well** ft.  
**Target Q** 65 gpm  
**Reference pt. for depth to water** ft. msl  
**Static Water Level @ start of test** 7.0 ft. msl  
**Water level measurements by:**  
- [ ] electrical sounder  
- [ ] pressure transducer  
- [ ] airline  

**START TEST**  
Date: 10/8/06  
Time of day: 800  
Flow Meter Reading Start: 5 gallons

<table>
<thead>
<tr>
<th>Suggested elapsed time \ Actual elapsed time</th>
<th>Depth to water \ Drawdown (nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (μmhos)</th>
<th>Cl- (mg/l)</th>
<th>Temp. \°C</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>(min)</td>
<td>(min)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-45</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>836.55</td>
<td>0.00</td>
<td>48</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>837.81</td>
<td>1.26</td>
<td>58</td>
<td>69</td>
<td>Start pump/Cl- taken</td>
</tr>
<tr>
<td>1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>837.80</td>
<td>1.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>837.79</td>
<td>1.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>837.77</td>
<td>1.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**DRILLER'S LOG**

**WELL NUMBER: 5417-04**

<table>
<thead>
<tr>
<th>Depths (ft)</th>
<th>Rock Description, Water Level, etc.</th>
<th>Dates</th>
<th>Depths (ft)</th>
<th>Rock Description, Water Level, etc.</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 26.5</td>
<td>60 ,400' water bearing</td>
<td>11/10</td>
<td>4615 to 4765</td>
<td>No circulation</td>
<td></td>
</tr>
<tr>
<td>26.5 to 51.5</td>
<td>Blue Rock, 27'-30' Water</td>
<td></td>
<td>4615 to 5015</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>51.5 to 76.5</td>
<td>Clay, Stuck But Free</td>
<td></td>
<td>5015 to 5265</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>76.5 to 101.5</td>
<td>Soft, 97' sticky</td>
<td></td>
<td>5265 to 5515</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>101.5 to 126.5</td>
<td>Soft, 90' Blue</td>
<td></td>
<td>5515 to 5765</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>126.5 to 151.5</td>
<td>Hard, grippy sticky</td>
<td></td>
<td>5765 to 6015</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>151.5 to 176.5</td>
<td>Gray, Dark Blue</td>
<td></td>
<td>6015 to 6265</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>176.5 to 201.5</td>
<td>Still Blue, grey</td>
<td></td>
<td>6265 to 6515</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>201.5 to 226.5</td>
<td>All Soft Rock, Red</td>
<td></td>
<td>6515 to 6765</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>226.5 to 251.5</td>
<td>Soft Red, good drilling</td>
<td></td>
<td>6765 to 7015</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>251.5 to 276.5</td>
<td>Good, bad drilling</td>
<td></td>
<td>7015 to 7265</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>276.5 to 301.5</td>
<td>Very, 44 by Bad/Tran</td>
<td></td>
<td>7265 to 7515</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>301.5 to 326.5</td>
<td>Rocks, lost circulation</td>
<td></td>
<td>7515 to 7765</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>326.5 to 351.5</td>
<td>No circulation</td>
<td></td>
<td>7765 to 8015</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>351.5 to 3765</td>
<td></td>
<td></td>
<td>8015 to 8265</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>3765 to 4015</td>
<td></td>
<td></td>
<td>8265 to 8515</td>
<td>81'5 pressure on air</td>
<td></td>
</tr>
<tr>
<td>4015 to 4265</td>
<td></td>
<td></td>
<td>8515 to 8765</td>
<td>17165 pressure on air</td>
<td></td>
</tr>
<tr>
<td>4265 to 4515</td>
<td></td>
<td></td>
<td>8765 to 9015</td>
<td>815 pressure on air</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**

Lost circulation around 350 and water recovered at through many different layers, no matter how much form was used I could only get a little air from discharge.

This bore hole blew a considerable amount of air before the cement joint.
13. AS-BUILT WELL SECTION (Please attach as-built if different from diagram provided below)

- **Solid Casing Material:**  
  - Carbon Steel: compliant with (check one or more):  
    - ANSI/AWWA C200  
    - API Spec. 5L  
    - ASTM A53  
    - Other  
  - Stainless Steel: compliant with (check one or more):  
    - ASTM A242  
    - Type E  
    - Type S  
    - Grade B  
    - Other  
- 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  
- 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  
    - Other  
  - Stainless Steel: compliant with (check one or more):  
    - ASTM A242  
    - Type E  
    - Type S  
    - Grade B  
    - Other  
- 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  
- Thermoset Plastic: (check one)  
  - Filament Wound Resin Pipe conforming to ASTM D2996  
  - Centrifugally Cast Resin Pipe conforming to ASTM D2997  
  - Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517  
  - Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950  
  - PTFE Fluorocarbon Tubing conforming to ASTM D3296  
  - FEP Fluorocarbon Tubing conforming to ASTM D3296

- **Bench mark elevation:**  
  - 8.44 ft. msl  
  - (Survey to nearest 0.01 ft.)

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

- **Annular space between hole and casing (min. 3")**  
  - 3" in.

- **Rock or Gravel Packing:**  
  - N/A ft.  
  - Material:  
    - Crushed Basalt  
    - Rounded Gravel

- **Water Level Elevation:**  
  - 0.07 ft. msl

- **Solid Casing:**  
  - Length:  
  - Nominal Diameter:  
  - Wall Thickness:  
  - Bottom Elevation: -9.36 ft. msl

- **Open Casing:**  
  - Length:  
  - Nominal Diameter:  
  - Wall Thickness:  
  - Bottom Elevation: -9.36 ft. msl

- **Hawaii Well Construction and Pump Installation Standards**  
  - Please refer to the Hawaii Well Construction and Pump Installation Standards to ensure that your as-built is in compliance with applicable standards.

WCR1 Form 9/12/01 Page 2 of 4
## 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 621, 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.hawaii.gov/dlnr/cwrm/](http://www.hawaii.gov/dlnr/cwrm/).

<table>
<thead>
<tr>
<th>1. State Well No.:</th>
<th>5417-04</th>
<th>Well Name:</th>
<th>JN &amp; RS Well 1</th>
<th>Island:</th>
<th>Maui</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Address:</td>
<td>Ulumalu, Makawao</td>
<td>Tax Map Key:</td>
<td>2-8-2:12</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Drilling Company:</td>
<td>WALLANI DRILLING</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Drilling method used during construction:</td>
<td>☑ Rotary</td>
<td>☐ Percussion</td>
<td>☐ Other (describe)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Date Well Construction (drilled, cased, grouted) completed:</td>
<td>11-17-04</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*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: | 836 ft. below ground | Date and time of measurement: | 11-14-04 |
| 8. Step-Drawdown Test completed?: | ☑ Yes | ☐ No |
| 9. Constant Rate Aquifer Test completed?: | ☐ No | ☑ Yes |

*Parameters prior to pump test:*

| 10. Water-level: | 0.07 ft. above msl | Date and time of measurement: | 11-17-04 |
| 11. Chloride: | 40 ppm | Date and time of sampling: | 11-17-04 |
| 12. Temperature: | 69°F | Date and time of measurement: | 11-17-04 |

| 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 40 gpm at a head of 899 ft. (Attach pump specifications and rating curve) |
| 17. Remarks: | We waited for survey all day time for final Ed. |

---

**Licensed Driller (print):** MICHAEL ROBERTSON  
C-57 Lic. No. 20115  
Signature: Michael Robertson  
Date: 2/7/07

**Permittee (print):** Leung Sueke Juehs  
Signature: Juehs  
Date: 1/5/07

---

WCRI Form 4/29/03 Page 1 of 4
<table>
<thead>
<tr>
<th>TO:</th>
<th>INIT.</th>
<th>TO:</th>
<th>INIT.</th>
<th>FOR:</th>
<th>PLEASE:</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANAKALEA, P.</td>
<td></td>
<td>KUNIMURA, I.</td>
<td></td>
<td>Approval</td>
<td>See Me</td>
</tr>
<tr>
<td>CHING, F.</td>
<td></td>
<td>NAKAMA, L.</td>
<td></td>
<td>Signature</td>
<td>Review &amp; Comment</td>
</tr>
<tr>
<td>DANBARA, S.</td>
<td></td>
<td>NAKANO, D.</td>
<td></td>
<td>Information</td>
<td>Take Action</td>
</tr>
<tr>
<td>FUJII, N.</td>
<td></td>
<td>OHYE, M.</td>
<td></td>
<td></td>
<td>Type Draft</td>
</tr>
<tr>
<td>GOODING, K.</td>
<td></td>
<td>SAKODA, E.</td>
<td></td>
<td></td>
<td>Type Final</td>
</tr>
<tr>
<td>HARDY, R.</td>
<td></td>
<td>SWANSON, S.</td>
<td></td>
<td></td>
<td>File</td>
</tr>
<tr>
<td>HOAGBIN, S.</td>
<td></td>
<td>UYENO, D.</td>
<td></td>
<td></td>
<td>Xerox ____ copies</td>
</tr>
<tr>
<td>ICE, C.</td>
<td></td>
<td>YODA, K.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IMATA, R.</td>
<td></td>
<td>YOSHINAGA, M.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>KIMURA, J.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Return Receipt Fax Memo

Charley,

Enclosed are the following items:

_____ WCR 1 for JN & RS Well No. 5417-04
_____ Pump Installation Permit for Patno Well No. 6852-01 ← Not attached

Please confirm receipt of these documents by checking off the enclosed items and faxing a copy of this memo to me at 808-579-8769.

Thank you,

Michael Robertson
TO:      Mike Robertson          Date:  13 June 07
FROM:    Charley Ice

1. I called last week to request a photo from JRARS Well #1 so we can accept WCR1. Can you check your files?

2. We never received any monitoring data from Kupaa Well during testing of the Squestrum Well. I'm not sure we can approve a new well unless we can see better evidence of non-interference.
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

FAX: Transmitting 1 pages, including this one; call 587-0251 with any reception problems.

TO: Mike Robertson
FROM: Charley Tan

1. I called last week to request a photo from JKCRS Well #1 so we can accept WCR1. Can you check your files?

2. We never received any monitoring data from Kupaa Well during testing of the Squeatrim Well. I'm not sure we can approve a new well unless we can see better evidence of non-interference.

Return Fax: 587-0219
Return Post: P.O. Box 621, Honolulu 96809
MEMO and ROUTE SLIP (ver. 1/10/07) 02/12/07
WCR 1 Check for Well No. 5417-04

1. **Pump Tests Check** Roy Hardy __________ (initial)  
   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.  
   - If yes, identify most probable stream  

2. **Well Log Check**  
   Geology Code for Well Index:  
   - If no, describe deficiency  
   - Latitude  
   - NAD27  
   - NAD83  

3. **Construction Check** Mitch Ohye __________ (initial)  
   - data complete  
   - followed Special Cond & elevations  
   - well database updated  
   - Staff internal checks  

4. **Charley/Lenore/Ryan** __________ (initial)  
   - To be sent to driller/pump installer  
   - To Landowner  
   - Staff internal checks  

5. Roy __________ (initial) check (Entered WCR 1/WCCC accept date into database)  
6. Susan Hoagbin __________ (initial) finalize  
7. Mitch (initial) signature (Entered PIP issue date if required)  
8. Charley/Lenore/Ryan **File**

**ATTACHMENTS FOR PUMP INSTALLATION PERMIT (2x)**  
1. COVER LETTER  
2. COUNTY COMMENTS (DWS/SMA)  
3. DOH COMMENTS  
4. DLNR COMMENTS (LD/OCCUDHP)  
5. WCR 1 Accept  
6. WELL CONST. COMPLETION CERTIFICATE  
7. USGS MAP UPDATED  
8. PARCEL CHECK  
9. WELL DATABASE INPUT CHECK  
10. GLENN'S PUMP TEST WORKSHEET  
11. WELL As-Built CHECK PRINT  

**MEDICAL HISTORY AND IMMUNIZATION**  

**APPROVED**  

**DATE**  

**APPROVED**
6. The landowner shall cause the well operator to maintain the installed 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/annual) basis, on forms provided by the Chairperson (attached), in accordance with §13-168-7, HAR.

7. 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. The authorization to drill a well and/or install a pump shall not constitute a determination of correlative water rights. The landowner and well operator are notified that the quantity of water taken from the well and/or the pump capacity could be reduced by the Commission in the future.

8. If your well produces less than 70 gallons per minute, and no elevation survey has been completed, you may be required to do one in the future.

Because groundwater in Hawaii is a public trust, and adverse effects at one well may affect other water resources, any violation of the above conditions, or any other provision of the Hawaii Administrative Rules, may be subject to fines of up to $5,000/day. The Commission needs your help and asks that you to do your part in utilizing this shared resource. We prefer to work with you in meeting the goal of protecting our ground water resources together.

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,

KEN C. KAWAHARA, P.E.
Deputy Director

CI:ss
Enclosures

c: Maui Department of Water Supply
Wailani Drilling, Inc.
July 19, 2007

Mr. Ron Serle  
JN & RS, LLC  
1879 Olinda Road  
Makawao, HI 96768

Dear Mr. Serle:

Certificate of Well Construction Completion for Well No. 5417-04

We are pleased to inform you that the Well Construction work permitted for the JN & RS Well 1 (Well No. 5417-04) is complete and acceptable.

To protect Hawaii’s natural ground water resources for the benefit of all, the following requirements apply to the use of your well:

1. Before this well can be pumped on a regular basis, a certificate of pump installation completion must be obtained.
2. If the well is not in use it must be properly capped.
3. If the well is to be abandoned then the landowner must cause a licensed contractor to apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.
4. In the event that the well operator and/or landowner changes, the Commission shall be notified of the change prior to the change, and all forms shall be transferred to the new owner.
5. In the event the benchmark in the concrete base of the well is altered in any way, an updated elevation survey (page 5 of the Well Completion Report Part I) shall be submitted to the Commission. The Well Completion Report Part I can be obtained by contacting staff or at www.hawaii.gov/dlnr/cwrn/forms.htm.
July 19, 2007

Mr. Michael Robertson
P.O. Box 790299
Paia, HI 96779

Dear Mr. Robertson:

Well Completion Report Part I for Well No. 5417-04

We received your Well Completion Report Part I for the JN & RS Well 1 (Well No. 5417-04) on February 9, 2007 and acknowledge that it is complete.

This completes your obligation under the well construction permit. A certificate of well construction completion will be issued to the well operator/landowner and you will receive a copy. This certificate transfers responsibility of specific aspects of well usage and maintenance from you to the well operator/landowner.

If you have any questions, please contact Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400, extension 2051.

Sincerely,

KEN C. KAWAHARA, P.E.
Deputy Director

Cl: ss

c: Ron Serle
Aloha Charley: Thank you for helping me tie up these loose ends.

Enclosed is: WCR I for Kiholana Wanco, owner decided to go with a 5HP 50 gpm pump and defog survey. Please issue a PIP and I'll complete WCR II.

WCR II for JNRS well #1. They won't need well 2.

WCR II for Open A+ Hott wells 1 and 2.

Please excuse the delay in reporting. It was mostly due to the problems they had with contamination as they kept testing over and over. They still aren't sure but my gut is.

Will have info on Kahuna tomorrow and KeAlii. KeAlii never got surveys either but wells are capped.

Aloha for now, Michael
Geographic Coordinates:
Lat. 20° 54' 25.14" N
Long. 156° 16' 50.76" W

PLOT PLAN
(Provide latitude and longitude of well
referenced to WAGG to observe section)

Well Elevation
Benchmark Elevation 844.46
(0.31 ft. above sea level)

Concrete Pad

Benchmark reference control point
USGS Trig. Station
"KULOLI-2"
NGVD 1927 Datum

Surveyor's stamp and signature

Edgardo V. Valera
Licensed Professional
Land Surveyor
State of Hawaii Cert. 5076

6-5-417-04 Kaupakalua
Sn.: Rs 1
Bench mark elevation surveyed to nearest 0.01 ft = 294.4 ft mean sea level

Elevation of top of chase tube = 94.49 ft mean sea level

Pump intake depth = 85.5 ft (referenced to bench mark)

Chase tube depth = 85.5 ft (referenced to bench mark)

If airline installed, bottom of airline elevation = 7.91 ft mean sea level
## 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 821, Honolulu, Hawaii 96809. The Commission may not accept incomplete reports. This form shall be submitted within 90 days of the completion of work. For assistance, please consult the Hawaii Well Construction and Pump Installation Standards or call the Regulation Branch at 587-0225. For updates to this form or additional information, please visit our website at http://www.hawaii.gov/dlnr/owrm/

### 1. State Well No.: 5417-04
   **Well Name:** JNRS Well 1  
   **Island:** Maui

### 2. Address: Ulumalu, Makawao  
   **Tax Map Key:** 2-8-2112

### 3. Pump Installation Company: Wailani Drilling Inc.

### 4. Date Pump Installed: 10/08/06

### 5. PERMANENT PUMP INFORMATION

<table>
<thead>
<tr>
<th>Pump Type, Make, Serial No.:</th>
<th>Grundfos 408150-44PS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rated Capacity:</td>
<td>40 gpm</td>
</tr>
<tr>
<td>Motor Type, H.P., Voltage, rpm:</td>
<td>Franklin 15 HP, 460V, 3Ph, 3450 RPM</td>
</tr>
</tbody>
</table>

### 6. Method of flow measurement:

- Flowmeter  
- Other, explain and attach schematic

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

### 8. Attach the rating curve for the installed pump.

### 9. Attach photograph of well clearly showing the benchmark on the concrete pad, the well head, and the method of flow measurement.

### 10. Well Owner
   **Company:** JNRS LLC  
   **Address:** 1879 Olinda Rd, Makawao, HI 96768  
   **Phone:** 573-8500  
   **Fax:** 573-8555

### 11. Land Owner
   **Company:** Same  
   **Address:**  
   **Phone:**  
   **Fax:**

### 12. Remarks

---

**Pump Installation Contractor (print):** Michael Rothenbuehler  
**Lic. No.:** 20115

**Signature:** 
**Date:** 10/20/06

---

**WCR2 Form 3/17/06 Page 1 of 2**
MEMO and ROUTE SLIP (ver. 8/31/07)

WCR 2 Check for Well No. 5417-04 (survey to regulation memo)

1. **Pump Tests Check** (special condition of PIP? Yes/No) D. England (initial if yes)
   - Yes  No  If no, describe deficiency
   
   **Step-Drawdown Test:**
   - followed WCPI Stds
   - analysis attached
   - proposed pump cap o.k.
   - $\square$ $\square$ $\square$ $\square$ $\square$ $\square$
   - <70 gpm no test required

   **Aquifer Pump Test:**
   - followed WCPI Stds
   - T & S analysis attached
   - $\square$ $\square$ $\square$ $\square$ $\square$ $\square$
   - <50 gpm no test required

   **Potential Well Interference:**
   - $\square$ $\square$ $\square$ $\square$ $\square$ $\square$

   **Potential Stream Impacts:**
   - $\square$ $\square$ $\square$ $\square$ $\square$ $\square$
   - stream names:

   **Additional Testing or Data Required:**
   - $\square$ $\square$ $\square$ $\square$ $\square$ $\square$

   **Pump Test Comments Attached:**
   - $\square$ $\square$ $\square$ $\square$ $\square$ $\square$

2. **Pump Installation Check** Mitch Ohye (initial)
   - Yes  No  If no, describe deficiency
   
   - data complete
   - followed Special Cond & Elev.
   - well database updated
   - $\square$ $\square$ $\square$ $\square$ $\square$ $\square$
   - emailed - see tab
   - photo of PFS

3. Charley/Ryan (initial) take action based on above analysis
   - what about
   - 5416-01 date
   - well? Expire
   - To be sent to driller
   - To be sent to landowner/operator letter of WCR 12
   - Well 12 not do
   - Staff internal checks

4. Roy (initial) check (Entered WCR 2/PICC accept date into database)

5. Susan Hoagbin (initial) finalize

6. Faith Ching (initial) enter into WUR database

6. Charley/Ryan File
6. The landowner shall cause the well operator to maintain the installed meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on an annual basis, on forms provided by the Chairperson (attached), in accordance with §13-168-7, HAR.

7. 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. The authorization to drill a well and/or install a pump shall not constitute a determination of correlative water rights. The landowner and well operator are notified that the quantity of water taken from the well and/or the pump capacity could be reduced by the Commission in the future.

8. In the event that your installed pump is less than 70 gallons per minute, and no elevation survey has been completed, you may be required to do one in the future.

Because groundwater in Hawaii is a public trust, and adverse effects at one well may affect other water resources, any violation of the above conditions, or any other provision of the Hawaii Administrative Rules, may be subject to fines of up to $5,000/day. The Commission needs your help and asks that you do your part in utilizing this shared resource. We prefer to work with you in meeting the goal of protecting our ground water resources together.

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

Sincerely,

KEN C. KAWAHARA, P.E.
Deputy Director

CI: ss
Encl: Water Use Report Forms

c: Wailani Drilling, Inc.
   Maui Department of Water Supply
Dear Mr. Serle:

Certificate of Pump Installation Completion for Well No. 5417-04 (TMK: 2-8-002:012)

We are pleased to inform you that the Pump Installation work permitted for the JN & RS Well (Well No. 5417-04) is complete and acceptable. This certificate of pump installation completion allows you to commence pumping your well for reasonable & beneficial water use.

To protect Hawaii's natural ground water resources for the benefit of all, the following requirements apply to the use of your well:

1. If the well is not in use it must be properly capped.

2. If the well is to be abandoned then the landowner must cause a licensed contractor to apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

3. In the event that the well operator and/or landowner changes, the Commission shall be notified of the change prior to the change, and all forms shall be transferred to the new owner.

4. In the event the benchmark in the concrete base of the well is altered in any way, an updated elevation survey (page 5 of the Well Completion Report Part I) shall be submitted to the Commission. The Well Completion Report Part I can be obtained by contacting staff or at www.hawaii.gov/dlnr/cwrm/forms.htm.

5. Your approved pump has a capacity of 40 gpm at a head of 899 ft. In the future, pump replacements of equal or lesser capacity will not require an additional permit from the Commission, but will require the submission of a Well Completion Report Part II by the licensed pump installer. If the pump replacement is greater than the existing pump, you will need to apply for a new pump installation permit.
PUMP INSTALLATION PERMIT  
JN & RS Well 1, Well No. 5417-04  

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 JN & RS Well 1 (Well No. 5417-04) at TMK 2-8-002:012, Maui, subject to the Hawaii Well Construction & Pump Installation Standards (HWCPIS - February 2004) which include but are not limited to the following conditions:

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

2. No withdrawal of water shall be made other than for testing until a Certificate of Pump Installation Completion has been issued by the Commission.

3. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.

4. The pump installation permit shall be for installation of a 65 gpm rated capacity, or less, pump in the well. This permanent capacity may be reduced in the event that the pump test data does not support the capacity.

5. A water-level measurement access shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels.

6. The permittee shall install an approved meter or other appropriate means for measuring and reporting withdrawals and appropriate devices or means for measuring chlorides and temperature at the well head.

7. Well Completion Report Part II shall be submitted to the Chairperson within 60 days after completion of work. This form can be obtained by contacting staff or on the internet at www.hawaii.gov/dlnr/cwrm.

8. 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.

9. The 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 HWCPIS. If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result. Any variances from the HWCPIS shall be approved by the Chairperson prior to invoking the variance.

10. 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 the date the permit expires.

11. 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.

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

Date of Approval: February 9, 2007  
Expiration Date: February 9, 2009

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 understand that this permit is not to be transferred to any other entity. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $5,000 per day starting from the permit date of approval.

Installer's Signature: ___________________________  C-57, C-57a, or A License #: 20115  Date: ___________________________

Printed Name: Michael 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.

Attachments
February 7, 2008

Ref: 5417-04.pip

Mr. Michael Robertson
Wailani Drilling, Inc.
P.O. Box 790299
Paia, HI 96779

Dear Mr. Robertson:

Pump Installation Permit
JN & RS Well 1 (Well No. 5417-04)

Our apologies for this late transmittal of this permit. We believed it had been issued on February 20, 2007, but our records cannot confirm this. Therefore, 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 is responsible for all conditions of the permit. This includes ensuring the submission of a completed Well Completion Report Part II form within sixty (60) days after the pump installation work is completed. Be advised that you may be subject to fines of up to $5,000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign both permit originals and return one for our files.

IMPORTANT - Pump installation shall not commence until a fully signed permit is returned to the Commission.

Finally, this letter takes notice that we have accepted your Well Completion Report - Part I as complete as of February 9, 2007.

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

Sincerely,

Laura H. Thielean
Chairperson

Enclosure

c: JN & RS, LLC
USGS
Maui Department of Water Supply
Well Completion Report Part II for Well No. 5417-04

We received your Well Completion Report Part II for the JN & RS Well (Well No. 5417-04) on October 24, 2007 and acknowledge that it is complete. Thank you for responding to our request for a photo of the meter by noting that it was sent earlier to belatedly complete the well construction report (WCR Part 1).

This completes your obligations under the pump installation permit. A certificate of pump installation completion will be issued to the well operator/landowner and you will receive a copy. The certificate transfers responsibility of all aspects of well usage and maintenance from you to the well operator/landowner.

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

Sincerely,

KEN C. KAWAHARA, P.E.
Deputy Director

Cl: ss

c: JN & RS, LLC
PUMP INSTALLATION PERMIT
IN & RS Well 1, Well No. 5417-04

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 IN & RS Well 1 (Well No. 5417-04) at TMK 2-8-002:012, Maui, subject to the Hawaii Well Construction & Pump Installation Standards (HWCPIS - February 2004) which include but are not limited to the following conditions:

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

2. No withdrawal of water shall be made other than for testing until a Certificate of Pump Installation Completion has been issued by the Commission.

3. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.

4. The pump installation permit shall be for installation of a 65 gpm rated capacity, or less, pump in the well. This permanent capacity may be reduced in the event that the pump test data does not support the capacity.

5. A water-level measurement access shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels.

6. The permittee shall install an approved meter or other appropriate means for measuring and reporting withdrawals and appropriate devices or means for measuring chlorides and temperature at the well head.

7. Well Completion Report Part II shall be submitted to the Chairperson within 60 days after completion of work. This form can be obtained by contacting staff or on the internet at www.hawaii.gov/dlnr/cwrm.

8. 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.

9. 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 HWCPIS. If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result. Any variances from the HWCPIS shall be approved by the Chairperson prior to invoking the variance.

10. 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 the date the permit expires.

11. 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.

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

Date of Approval: February 9, 2007
Expiration Date: February 9, 2009

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 understand that this permit is not to be transferred to any other entity. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $5,000 per day starting from the permit date of approval.

Installer's Signature: ____________________________ A License #: 20115 Date: 10-20-08

Printed Name: Michael 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.

Attachments

rec'd via email, 18 Apr 08, 3:46p
PUMP INSTALLATION PERMIT
JN & RS Well I, Well No. 5417-04

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 JN & RS Well I (Well No. 5417-04) at TMK 2-8-002:012, Maui, subject to the Hawaii Well Construction & Pump Installation Standards (HWCPIS - February 2004) which include but are not limited to the following conditions:

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

2. No withdrawal of water shall be made other than for testing until a Certificate of Pump Installation Completion has been issued by the Commission.

3. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.

4. The pump installation permit shall be for installation of a 65 gpm rated capacity, or less, pump in the well. This permanent capacity may be reduced in the event that the pump test data does not support the capacity.

5. A water-level measurement device shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels.

6. The permittee shall install an approved meter or other appropriate means for measuring and reporting withdrawals and appropriate devices or means for measuring chlorides and temperature at the well head.

7. Well Completion Report Part II shall be submitted to the Chairperson within 60 days after completion of work. This form can be obtained by contacting staff or on the internet at www.hawaii.gov/dlnr/wrm.

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

9. 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 HWCPIS. If the HWCPIS are not followed and as a consequence water is wasted or polluted, a lien on the property may result. Any variances from the HWCPIS shall be approved by the Chairperson prior to invoking the variance.

10. 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 the date the permit expires.

11. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or damage 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.

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

Date of Approval: February 9, 2007
Expiration Date: February 9, 2009

LAURA H. THIELEN, 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 understand that this permit is not to be transferred to any other entity. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $5,000 per day starting from the permit date of approval.

Installer's Signature: Michael Robertson
A License #: 20115
Date: 10-20-06

Printed Name: Michael 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.

Attachments
Wailani Drilling, Inc.
Michael Robertson • Lic. #C57-20115
P.O. Box 790299 • Paia, HI 96779
Phone: 808-579-8768 • Fax: 579-8769
E-mail: waikane2@msn.com

FAX COVER

DATE: 2/26/2008
ATTN: Charley Ice
FROM: Leah
PAGES: 2
(including cover)
SUBJECT: JN & RS Well #5417-04
MESSAGE: Here is the PIP you requested. Sorry that got missed when the WCR2 was sent to you. Thank you for all of your help!
FROM: ROY

DATE: FEB 26 2008

SUSPENSE DATE: 

TO: 

INIT. TO: 

INIT: FOR: PLEASE:

- CHENG, C. KIMURA, J. Approval 
- CHING, F. KUNIMURA, I.
- CHONG, R. LEROUX, E. Signature
- DANBARA, S. NAKAMA, L. Information
- ENGLAND, D. OHYE, M. 
- FUJII, N. OSHIRO, K. 
- HARDY, R. SAKODA, E. 
- HOAGBIN, S. SWANSON, S. 
- ICE, C. UYENO, D. 
- IMATA, R. YODA, K. 
- KAWAHARA, K. YOSHINAGA, M.

---

PLEASE:

- See Me 
- Review & Comment 
- Take Action 
- Type Draft 
- Type Final 
- File 
- Xerox ___ copies 

---

Was there a WCP too?

signed Oct. 04

---

Database shows 6/20/04
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
WELL COMPLETION REPORT - PART II
Pump Installation

Instructions: Please print in ink or type and send completed report (with attachments, if applicable) to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 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 808-586-2225. For updates to this form or additional information, please visit our website at http://www.hawaii.gov/dlnr/wrm/

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1. State Well No.:</td>
<td>5417-04</td>
</tr>
<tr>
<td>Well Name:</td>
<td>JN + RS Well 1</td>
</tr>
<tr>
<td>Island:</td>
<td>Maui</td>
</tr>
<tr>
<td>2. Address:</td>
<td>Ulumalu, Makawao</td>
</tr>
<tr>
<td>Tax Map Key:</td>
<td>2-9-2112</td>
</tr>
<tr>
<td>4. Date Pump Installed:</td>
<td>10/05/06</td>
</tr>
<tr>
<td>5. PERMANENT PUMP INFORMATION</td>
<td></td>
</tr>
<tr>
<td>Pump Type, Make, Serial No.:</td>
<td>Grundfos 408150-44 DS</td>
</tr>
<tr>
<td>Rated Capacity:</td>
<td>40 gpm at head of 899 ft</td>
</tr>
<tr>
<td>Motor Type, H.P., Voltage, rpm:</td>
<td>Franklin 15 HP, 460 V, 365, 3450 Rpm</td>
</tr>
<tr>
<td>Pump type (check one):</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Method of flow measurement:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Flowmeter</td>
</tr>
<tr>
<td></td>
<td>Manufacturer: Micro data Model no. MMA Size 2</td>
</tr>
<tr>
<td>Other, explain and attach schematic:</td>
<td></td>
</tr>
<tr>
<td>6. Fill in the as-built section on the other side of this sheet.</td>
<td></td>
</tr>
<tr>
<td>7. Attach the rating curve for the installed pump.</td>
<td></td>
</tr>
<tr>
<td>8. Attach photograph of well clearly showing the benchmark on the concrete pad, the well head, and the method of flow measurement.</td>
<td></td>
</tr>
<tr>
<td>10. Well Owner Company:</td>
<td>JN + RS LLC</td>
</tr>
<tr>
<td>Contact:</td>
<td>Ron Serle</td>
</tr>
<tr>
<td>Address:</td>
<td>1879 Olinda Rd, Makawao HD 96768</td>
</tr>
<tr>
<td>Phone:</td>
<td>573 8500</td>
</tr>
<tr>
<td>Fax:</td>
<td>573 8555</td>
</tr>
<tr>
<td>11. Land Owner Company:</td>
<td>Same as 9</td>
</tr>
<tr>
<td>Contact:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
<td></td>
</tr>
<tr>
<td>Phone:</td>
<td></td>
</tr>
<tr>
<td>Fax:</td>
<td></td>
</tr>
<tr>
<td>12. Remarks:</td>
<td></td>
</tr>
</tbody>
</table>

Pump Installation Contractor (print) Michael Robertson (C5) C-576A Lic. No. 20115
Signature: Michael Robertson Date: 10/05/06
MEMO and ROUTE SLIP (ver. 8/31/07)  

**WCR 2 Check for Well No. 5417-04** (survey to regulation memo)  

**1. Pump Tests Check**  
(special condition of PIP? Yes/No)  

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>If no, describe deficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

Potential Well Interference:  

Potential Stream Impacts:  
stream names:  

Additional Testing or Data Required:  

Pump Test Comments Attached:  

**2. Pump Installation Check**  
Mitch Ohye (initial)  

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>If no, describe deficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

data complete  
followed Special Cond & Elev.  
well database updated  

**3. Charley/Ryan** (initial) take action based on above analysis  
- what about 5416-01 but well?  

ATTACHMENTS FOR ACCEPTANCE:  
1. WCR 2 ACCEPTANCE LETTER  
2. PUMP INST. COMPLETION CERTIFICATE  
3. METER INSTALL. REPORT (IF NECESSARY)  
4. WUR FORM (if necessary)  
5. USGS MAP UPDATED  
6. PARCEL CHECK  
7. WELL DATABASE INPUT CHECK  
8. GLENN'S PUMP TEST WORKSHEET  
9. PUMP AS-BUILT CHECK PRINT  

To be sent to driller  
To be sent to landowner/operator  
Staff internal checks  

**4. Roy** (initial) check (Entered WCR 2/PICC accept date into database)  

12/17/06  

**5. Susan Hoagbin** (initial) finalize  

**6. Faith Ching** (initial) enter into WUR database  

**6. Charley/Ryan File**
### PUBLIC RECORD DATA

<table>
<thead>
<tr>
<th>Taxkey</th>
<th>Subdiv/Condo</th>
<th>Tnr</th>
<th>Property Address</th>
<th>Owner/Lessee</th>
<th>Beds</th>
<th>Baths</th>
<th>Land area</th>
<th>Living area</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-2-8-2-12</td>
<td>Peahi</td>
<td>F</td>
<td>HAIKU</td>
<td>JN &amp; RS LLC</td>
<td></td>
<td></td>
<td>22.14 ac</td>
<td></td>
</tr>
</tbody>
</table>

This information has been supplied by third parties and has not been independently verified by Hawaii Information Service and is, therefore, not guaranteed.
<table>
<thead>
<tr>
<th><strong>Data Input</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Well Number</strong></td>
<td>5417-04</td>
</tr>
<tr>
<td><strong>Well Name</strong></td>
<td>JN &amp; RS Well 1</td>
</tr>
<tr>
<td><strong>Ground Elevation</strong></td>
<td>800</td>
</tr>
<tr>
<td><strong>Cement Grout</strong></td>
<td>750</td>
</tr>
<tr>
<td><strong>Grouting Method</strong></td>
<td>other</td>
</tr>
<tr>
<td><strong>Hole Diameter</strong></td>
<td>12.5</td>
</tr>
<tr>
<td><strong>Total Depth</strong></td>
<td>845</td>
</tr>
<tr>
<td><strong>Estimated Head</strong></td>
<td>5</td>
</tr>
<tr>
<td><strong>Public Water Supply Well?</strong></td>
<td>no</td>
</tr>
<tr>
<td><strong>Solid Casing Material</strong></td>
<td>steel</td>
</tr>
<tr>
<td><strong>Solid Casing Specification</strong></td>
<td>ASTM A53</td>
</tr>
<tr>
<td><strong>Solid Casing Length</strong></td>
<td>825</td>
</tr>
<tr>
<td><strong>Solid Casing Diameter</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>Solid Casing Wall Thickness</strong></td>
<td>0.28</td>
</tr>
<tr>
<td><strong>Open Casing Length</strong></td>
<td>20</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Results</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Well Depth</strong></td>
<td></td>
</tr>
<tr>
<td>Theoretical Thickness of Aquifer</td>
<td>205</td>
</tr>
<tr>
<td>1/4 Aquifer Thickness</td>
<td>51.25</td>
</tr>
<tr>
<td>Depth of Well below Sea Level</td>
<td>-45 okay</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Well Casing</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum Wall Thickness</td>
<td></td>
</tr>
<tr>
<td>Material</td>
<td>steel</td>
</tr>
<tr>
<td>Minimum Thickness per standards</td>
<td>#N/A</td>
</tr>
<tr>
<td>Wall Thickness Provided</td>
<td>0.28 #N/A</td>
</tr>
<tr>
<td>Minimum Length of Solid Casing</td>
<td></td>
</tr>
<tr>
<td>90% of ground to top of aquifer</td>
<td>715.5</td>
</tr>
<tr>
<td>Length of solid casing Provided</td>
<td>825 okay</td>
</tr>
<tr>
<td>Casing Material</td>
<td>ASTM A53 in compliance</td>
</tr>
<tr>
<td>(for pvc only - check for 200' limit)</td>
<td>okay</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Annular Space</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth of Grouting</td>
<td></td>
</tr>
<tr>
<td>Calculated Depth of Grouting</td>
<td>500</td>
</tr>
<tr>
<td>Depth of Grouting provided</td>
<td>750 okay</td>
</tr>
<tr>
<td>Minimum Annular Space required</td>
<td>2</td>
</tr>
<tr>
<td>Thickness of Annular Space</td>
<td>3.25 okay</td>
</tr>
</tbody>
</table>