WELL CONSTRUCTION PERMIT

Dragon's Eye Center Well, Well No. 3181-03

Note: This permit shall be prominently displayed at the construction 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

Dragon's Eye Center Well (Well No. 3181-03) at TMK 1-4-001:081, Hawaii, 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 of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules (HAR).
2. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.
3. The well construction permit shall be for construction and testing of the well only. The permittee shall coordinate with the Chairperson and conduct a pumping test in accordance with the HWCPIS (the latest pump test worksheet can be obtained by contacting Commission staff or at www.hawaii.gov/dlnr/cwrm/resources_permits.htm). The permittee shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson. No withdrawal of water shall be made for purposes other than testing without a Certificate of Pump Installation Completion. The permitted pump capacity described on the pump installation permit may be reduced in the event that the pump test does not support the capacity.
4. 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. If it can be shown that the well does not tap basal ground water then this condition may be waived after consultation with and acceptance by Commission staff. However, in no instance can the well be drilled deeper than one-half (1/2) of the theoretical thickness without Commission approval.
5. The permittee 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.
6. In the event that historically significant remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and immediately contact the Department of Land and Natural Resources’ State Historic Preservation Division. Work may recommence only after written concurrence by the State Historic Preservation Division.
7. 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.
8. The Well Completion Report Part I shall be submitted to the Chairperson within sixty (60) days after completion of work (please contact staff or visit www.hawaii.gov/dlnr/cwrm/resources_permits.htm for current form).
9. The permittee shall comply with all applicable laws, rules, and ordinances; non-compliance may be grounds for revocation of this permit.
10. The well construction permit application and, if relevant, any related staff submittal approved by the Commission are incorporated into this permit by reference.
11. If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.
12. Any variances from the HWCPIS shall be approved by the Chairperson prior to invoking the variance.
13. 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 the date the permit expires.
14. If the well is not to be used it must be properly capped. If the well is to be abandoned during the course of the project then the permittee must apply for a well abandonment permit in accordance with §13-168-12(c), HAR, prior to any well sealing or plugging work.
15. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or related to or connected with the granting of this permit.
16. This permit shall apply to the location shown on the application only. If the well is to be relocated, the permittee shall apply for a new well construction and pump installation permit in accordance with §13-168-12(f), HAR.
17. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval:  May 10, 2011
Expiration Date:  May 10, 2013

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 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.

Driller’s Signature: Derrick Moreira  C-57 License #: C-28001  Date:  6-20-11
Printed Name:  Derrick Moreira  Firm or Title: Derrick's Well Drilling and Pump Service

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

Attachment
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 Dragon's Eye Center (Well No. 3181-03) at TMK 1-4-001:081, Hawaii, 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 (HAR).

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 45 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 sixty (60) days after completion of work (please contact staff or visit www.hawaii.gov/dlnr/cwrm/resources_permits.htm for current form).

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, if relevant, any related staff submittal approved by the Commission are incorporated into this permit by reference.

10. If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

11. Any variances from the HWCPIS shall be approved by the Chairperson prior to invoking the variance.

12. 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.

13. 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.

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

Date of Approval: May 10, 2011
Expiration Date: May 10, 2013
WILLIAM J. AILA, JR., 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: Derrick Moreira
C-57, C-57a, or A License#: C-28001
Date: 6-20-11

Printed Name: Derrick Moreira
Firm or Title: Derrick's Well Drilling and Pump Service

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

Attachments
COMMISSION ON WATER RESOURCE MANAGEMENT
ROUTE SLIP FOR PERMIT ISSUANCE 3/9/11

FROM: RYAN
DATE: 3/9/11
SUSPENSE DATE: 

TO: CHONG, R. 
INIT. 
TO: KIMURA, J. 
INIT. 
FOR: Approval 
PLEAS:
1 Review & Comment
2 Take Action
3 Signature
4 Information
5 File
6 Xerox copies

FROM: RYAN
DATE: 3/9/11
SUSPENSE DATE: 

TO: CHONG, R. 
INIT. 
TO: KIMURA, J. 
INIT. 
FOR: Approval 
PLEAS:
1 Review & Comment
2 Take Action
3 Signature
4 Information
5 File
6 Xerox copies

WELL NUMBER 3181-03
WELL NAME Dragons Eye Center

application type BOTH
1 WCP COVER LETTER
2 WCP
3 WELL CHECK PRINTOUT
proposed well section issues?

4 PIP COVER LETTER
5 PIP

COMMENTS: date rec'd issues? if checked, send to applicant
6 SDWB X
7 WWB X
8 CBW X
9 HEER X
10 LD X
11 HP X
12 LUC not in CD X
13 OCCL not in CD X
14 SMA not in SMA X
15 BWS (Oahu) X

NOTES:
DRILLER Derrick Moreira
Derrick's Drilling and Pump Service
28002 P.O. Box 2187
Keeau HI 96749

phone
fax
cell

1-4-001:081
45
Debra Welch
Debra Welch
2/20/11
2/20/11
June 14, 2011

Mr. Derrick Moreira
Derrick's Well Drilling and Pump Service
P.O. Box 2187
Keeau, HI 96749

Dear Mr. Moreira:

Pump Installation Permit

**Dragon's Eye Center (Well No. 3181-03)**

Enclosed are two (2) originals of your approved Pump Installation Permit for the captioned well(s) that authorize permanent pump installation work for your well(s). As part of the Chairperson’s approval, the following special conditions were added and are part of your permit under Permit Condition 14:

**Special Conditions**

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

2. Attached for your information are copies 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. Also, please contact the Noise Radiation and Indoor Air Quality Branch at [contact information] to check compliance with construction noise permit requirements for this project.

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 copy to the Commission office for our files.

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

If you have any questions, please call Ryan Imata of the Commission staff at [contact information] or toll-free at 974-4000 (Hawaii), extension 70255.

Sincerely,

[Signature]

WILLIAM J. AILA, JR.
Chairperson

Enclosure

C: Debra Welch (with applicable comments – DOH CWB)
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 Dragon's Eye Center (Well No. 3181-03) at TMK 1-4-001:081, Hawaii, 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 (HAR).

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 45 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 sixty (60) days after completion of work (please contact staff or visit www.hawaii.gov/dlnr/cwrm/resources_permits.htm for current form).

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, if relevant, any related staff submittal approved by the Commission are incorporated into this permit by reference.

10. If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

11. Any variances from the HWCPIS shall be approved by the Chairperson prior to invoking the variance.

12. 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.

13. 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.

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

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 #: C-28001 Date: ___________________________

Printed Name: Derrick Moreira Firm or Title: Derrick's Well Drilling and Pump Service

Please sign both copies of this permit, return one copy to the Commission office, and retain the other for your records.
June 14, 2011

Ref: 3181-03.pip

Mr. Derrick Moreira
Derrick’s Well Drilling and Pump Service
P.O. Box 2187
Keeau, HI 96749

Dear Mr. Moreira:

Well Construction Permit
Dragon’s Eye Center Well (Well No. 3181-03)

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 a permanent pump. As part of the Chairperson’s approval, the following special conditions were added and are part of your permit under Permit Condition 17:

Special Conditions

1. Attached for your information are copies 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. Also, please contact the Noise Radiation and Indoor Air Quality Branch at [contact information] to check compliance with construction noise permit requirements for this project.

2. Grout sealing of annulus shall be accomplished in lifts of less than 200 ft. and allowed to cure for at least 24 hours before the next lift is poured.

Please refer to the Permit Processes Worksheet (transmitted with your acknowledgement letter) for further information regarding the process of drilling a well and installing a pump.

No withdrawal of water shall be made other than for testing purposes until a certificate of pump installation completion has been issued by the Commission.

Please sign both permit originals and return one copy to the Commission office for our files. For copies of the aquifer pump test worksheet, please call staff or visit www.state.hi.us/dlnr/cwrm/forms.htm.

IMPORTANT - Drilling work shall not commence until a fully signed permit is returned to the Commission. The permit shall be prominently displayed or made available at the construction site during construction. 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.

If you have any questions, please call Ryan Imata of the Commission staff at [contact information] or toll-free at [contact information] (Hawaii), [contact information] (Kauai), [contact information] (Maui), or [contact information] (Lanai & Molokai), extension 70255.

Sincerely,

WILLIAM J. AILA, JR.
Chairperson

Enclosures

c: Debra Welch (with applicable comments – DOH CWB)
WELL CONSTRUCTION PERMIT

Dragon's Eye Center Well, Well No. 3181-03

Note: This permit shall be prominently displayed at the construction 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 Dragon's Eye Center Well (Well No. 3181-03) at TMK 1-4-001:081, Hawaii, subject to the Hawaii Well Construction & Pump Installation Standards (HWCPIS - February 2004) which include but are not limited to the following conditions:

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4. 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. If it can be shown that the well does not tap basal ground water then this condition may be waived after consultation with and acceptance by Commission staff. However, in no instance can the well be drilled deeper than one-half (1/2) of the theoretical thickness without Commission approval.
5. The permittee 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.
6. In the event that historically significant remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and immediately contact the Department of Land and Natural Resources' State Historic Preservation Division. Work may recommence only after written concurrence by the State Historic Preservation Division.
7. The proposed well construction shall not 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.
8. The Well Completion Report Part I shall not be submitted to the Chairperson within sixty (60) days after completion of work (please contact staff or visit www.hawaii.gov/dlnr/cwrm/resources_permits.htm for current form).
9. The permittee shall comply with all applicable laws, rules, and ordinances; non-compliance may be grounds for revocation of this permit.
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14. If the well is not to be used it must be properly capped. If the well is to be abandoned during the course of the project then the permittee must apply for a well abandonment permit in accordance with §13-168-12(f), HAR, prior to any well sealing or plugging work.
15. 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.
16. This permit shall apply to the location shown on the application only. If the well is to be relocated, the permittee shall apply for a new well construction/pump installation permit in accordance with §13-168-12(f), HAR.
17. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: May 10, 2011
Expiration Date: May 10, 2013

WILLIAM J. AILA, JR., 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 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.

Driller's Signature: ___________________________ C-57 License #: C-28001 Date: ___________________________

Printed Name: Derrick Moreira Firm or Title: Derrick's Well Drilling and Pump Service

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

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

<table>
<thead>
<tr>
<th>Data Input</th>
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<tbody>
<tr>
<td>Well Number</td>
<td>3181-03</td>
</tr>
<tr>
<td>Well Name</td>
<td>Dragon's Eye Center</td>
</tr>
<tr>
<td>Ground Elevation</td>
<td>260</td>
</tr>
<tr>
<td>Cement Grout</td>
<td>190</td>
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<td>Grouting Method</td>
<td>other</td>
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<td>Hole Diameter</td>
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<td>Total Depth</td>
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<td>Water Level</td>
<td>10 Depth to water 250</td>
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<td>Solid Casing Material</td>
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<td>Solid Casing Specification</td>
<td>Schedule 40</td>
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<td>Solid Casing Wall Thickness</td>
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<td>Open Casing Length</td>
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<th>Results</th>
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<td>Well Depth</td>
<td></td>
</tr>
<tr>
<td>Theoretical Thickness of Aquifer</td>
<td>410</td>
</tr>
<tr>
<td>1/4 Aquifer Thickness</td>
<td>102.5</td>
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<td>Depth of Well below Sea Level</td>
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<tr>
<td>Well Casing</td>
<td></td>
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<tr>
<td>Minimum Wall Thickness Material</td>
<td>pvc plastic</td>
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<td>Minimum Thickness per standards</td>
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<td>Wall Thickness Provided Wall</td>
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<td>Minimum Length of Solid Casing</td>
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<td>90% of ground to top of aquifer</td>
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<td>Casing Material</td>
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<td>(for pvc only - check for 200' limit)</td>
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<tr>
<td>Annular Space</td>
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<td>Depth of Grouting</td>
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<td>Calculated Depth of Grouting</td>
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<td>Depth of Grouting provided</td>
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<tr>
<td>Thickness of Annular Space</td>
<td>3 okay</td>
</tr>
</tbody>
</table>
TO: Russell Tsuji, Administrator  
Land Division  

FROM: Lenore N. Ohye, Acting Deputy Director  
Commission on Water Resource Management  

SUBJECT: Well Construction/Pump Installation Permit Application  
Dragon's Eye Center Well (Well No. 3181-03) TMK 1-4-001:081  

December 28, 2010  

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 February 20, 2011. If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.  

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

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. [Lease Number].  

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

No objections  

[ ] Other comments:  

Contact Person: ___________________________ Phone: ___________________________  

Signed: ___________________________ Date: 1/24/11
December 28, 2010

TO: Honorable Keith R. Ridley, Acting Director
Department of Health
Attention: Acting Chief, Wastewater Branch
Stuart Yamada, Chief, Safe Drinking Water Branch
Alec Wong, Chief, Clean Water Branch
Dr. Keith Kawaoka, Office of Hazard Evaluation and Emergency Response

FROM: William J. Aila, Jr., Interim Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Dragon's Eye Center Well (Well No. 3181-03) TMK 1-4-001:081
Well address: Puua Kapohono Road

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 February 20, 2011. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comments.

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

Please respond to

Response:

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

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

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

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

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

6. An NPDES permit is required.

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

8. In the event that the location of the well changes but is still within the parcel described on this application, our division considers the comments to still be applicable, and we do not need to review the new location.

Contact Person: Jerry Nunogawa, Eng. in Hilo

Signed: Date: 1-3-2011
COMMISSION ON WATER RESOURCE MANAGEMENT
ROUTE SLIP FOR NEW APPLICATIONS

FROM: RYAN
DATE: 23-Nov-10
SUSPENSE DATE: 30-Nov-10

TO: INIT. TO: INIT. FOR: PLEASE:
1 FUJII, N. 3 KUNIMURA, I. 1 Approval See Me
2 HARDY, R. 3 UYENOD. 3 Signature Take Action
4 HOAGBIN, S. 4 YODA, K. 1 Approval, Update People.db
5 ICE, C. 1 Review & Comment
6 IMATA, R. 1 See Me

WELL NUMBER 3181-03 WELL NAME Dragons Eye WUP Number na

☐ WELL CONSTRUCTION ☐ PUMP INSTALLATION ☐ WUPA

ATTACHMENTS FOR APPLICATION PROCESSING - Both applicant & staff generated
1 TRANS. LETTER
2 PERMIT PROCESS TABLE ☑ making 1-mile radius and penciling in on hanging maps H - 173
3 CWRM MAPS ☑
4 APPL. FORM (11 COPIES) ☑
5 USGS MAPS (11 COPIES) ☑
6 TAX MAPS (11 COPIES) ☑
7 PARCEL OWNER VERIF. ☑ MLS PRINTOUT
8 CONTRACTOR VERIF. ☑ DCCA LICENSE SCREEN PRINTOUT
9 ALL INFO FILLED IN ☑
10 BACKGROUND CHECK ☑
11 $25 FEE DEPOSIT SLIP ☑
12 DHP/CDUP/SMA pre-screen ☑ (SMA map printout http://gis.hicentral.com/website/parcelzoning/viewer.htm., or INGRID’S SMA/CD MAP)
(LUC map printout http://luc.state.hi.us/luc_maps.htm., or INGRID’S SMA/CD MAP)
13 EA 343 5(a) triggers? ☑
   YES - trigger identified is:
   (if triggered, exemption analysis memo must be attached before accepting)

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>
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Mr. Derrick Moreira  
Derrick's Well Drilling and Pump Service  
P.O. Box 2187  
Keeau, HI 96749

Dear Mr. Moreira:

Well Construction/Pump Installation Permit Application for Well No. 3181-03

We acknowledge receipt, on November 22, 2010, of your completed Well Construction/Pump Installation permit application and filing fee for the Dragon's Eye Center Well (Well No. 3181-03). You can expect your application to be processed within ninety (90) days from this date.

For your information, the attached table describes the process, responsible parties, and deadline requirements for drilling or modifying a well and installing, modifying, or replacing a pump.

By this acceptance letter, we are also notifying the well operator/landowner that **water may not be pumped for purposes other than testing until the certificate of well construction/pump installation completion letter is issued to the well operator and landowner**. Additionally, the permitted pump capacity described on the pump installation permit **may be reduced** in the event that the pump test does not support the capacity. No certificate of pump installation will be issued until the Commission has determined that the pump capacity will not have adverse effects on the aquifer, other nearby wells, or streams. In other words, you may need to remove the pump and install a smaller pump at the Commission’s discretion before you can withdraw water for purposes other than testing.

If you have any questions about your permit application, please contact Ryan Imata of the Commission staff at [ ] or toll-free at [ ] (Hawaii), [ ] (Kauai), [ ] (Maui), or [ ] (Lanai & Molokai) extension 70255.

Sincerely,

LENORE N. OHYE  
Acting Deputy Director

RI:ss  
Attachment  
c: Debra Welch
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

December 28, 2010

TO: Honorable Keith R. Ridley, Acting Director
    Department of Health
    Attention: Acting Chief, Wastewater Branch
              Stuart Yamada, Chief, Safe Drinking Water Branch
              Alec Wong, Chief, Clean Water Branch
              Dr. Keith Kawaoka, Office of Hazard Evaluation and Emergency Response

FROM: William J. Aila, Jr., Interim Chairperson ~
      Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application

Dragon's Eye Center Well (Well No. 3181-03) TMK 1-4-001:081
Well address: Puua Kapoho Road

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 February 20, 2011. If we do not receive comments or a request for additional review time by this date, we will assume that you have no comment(s).

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

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.

In the event that the location of the well changes but is still within the parcel described on this application, our division considers the comments to still be applicable, and we do not need to review the new location.

No comments/objections

Contact Person: ____________________ Phone: ____________________

Signed: ____________________ Date: ____________________
TO: Russell Tsuji, Administrator
    Land Division
FROM: Lenore N. Ohye, Acting Deputy Director
    Commission on Water Resource Management
SUBJECT: Well Construction/Pump Installation Permit Application
         Dragon's Eye Center Well (Well No. 3181-03) TMK 1-4-001:081

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 February 20, 2011. If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

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

RI:ss
Attachment(s)

RESPONSE:

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

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

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

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

[ ] No objections

[ ] Other comments:

Contact Person: ___________________________ Phone: __________

Signed: ___________________________ Date: __________
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 February 20, 2011.** 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 or request additional review time, please contact Ryan Imata of the Commission staff at [redacted]. If you require additional information regarding specific information that can be provided by the applicant, please contact the applicant directly at the contact information provided on the application form.

RI: ss
Attachment(s)

RESPONSE:

[ ] This is a [ ] public (county or state) project [ ] private project and [ ] will [ ] may disturb historic sites.

[ ] We concur that the work described under this permit will not disturb historic sites.

[ ] We do not concur that the work described under this permit will not disturb historic sites. We require the following for our concurrence:

Contact Person: ____________________________ Phone: ____________________________

Signed: ____________________________ Date: ____________________________
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<th>Subdiv/Condo Tr</th>
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This information has been supplied by third parties and has not been independently verified by Hawaii Information Service and is, therefore, not guaranteed.

Copyright ©12/28/2010 by Hawaii Information Service
**Professional and Vocational Licensing (PVL) Search - General Licensee**

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<td><strong>NAME:</strong> DERRICK'S WELL DRILLING &amp; PUMP SERVICES LLC</td>
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<tr>
<td><strong>MAILING ADDR:</strong> P O BOX 2187 KEAAU HI 96749</td>
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Click here to enter search criteria for prior complaints history ->
For prior complaints and disciplinary history, contact licensing and business information center at [Link]

License information on this site reflects information in the Professional and Vocational Licensing Division as of December 15, 2010; however, applications and forms are subject to standard processing time, and the information here does not reflect pending changes which are being reviewed. The site is updated daily, Monday through Friday, except holidays.
The State of Hawaii makes no guarantees as to the accuracy of the information accessed, the timeliness of the delivery of transactions, delivery to the correct party, preservation of the privacy and security of users and makes no warranties, including warranty of merchantability and fitness for particular purpose. User is advised that if the information obtained herein is to be reasonably relied upon, user should confirm the accuracy of such information with the provider thereof.
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REMARKS:
LINE (1) Dragons Eye Center Well
LINE (2) Alexis Well
LINE (3) 
LINE (4) 
LINE (5) 
LINE (6) 
LINE (7) 
LINE (8) 
LINE (9) 
LINE (10)
**WELL LOCATION INFORMATION**

1. **STATE WELL NO. (if already assigned)**: 
2. **WELL NAME**: Dragons Eye Center Well
3. **ISLAND**: Hawaii
4. **TMK**: 1 - 4 - 81

   - **zone**: 5
   - **soc**: 60
   - **plat**: 52
   - **parc**: 2

   The following be attached before this application is accepted as complete (check off if attached):
   - Property tax map, showing well location referenced to established property boundaries
   - Photograph of the proposed well site
   - A schematic diagram showing the well site, access road and proposed well infrastructure
   - For dug wells, attach a grading plan with cross section profiles showing existing and finish grades

5. **WELL OPERATOR'S NAME/COMPANY**: Derrick Welch
6. **WELL OPERATOR'S Mailing Address**: RR2 Box 3315
   - Pahoa, HI 96778
7. **Well Operator's FAX**: 
8. **Well Operator's E-mail**: 

<table>
<thead>
<tr>
<th>PROPOSED WELL CONSTRUCTION</th>
<th>PROPOSED PUMP INSTALLATION</th>
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<tbody>
<tr>
<td>7. Proposed Work</td>
<td>11. Proposed Pumping Rate, gpm</td>
</tr>
<tr>
<td>- Construct New Well</td>
<td>(gallons per minute) 45</td>
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<tr>
<td>- Modify Existing Well</td>
<td>12. Proposed Amount of</td>
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<tr>
<td>- Abandon/Seal Well</td>
<td>Withdrawal, gpd (gallons per day) 21,600</td>
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<th>8. Construction Type</th>
<th>13. Method of flow measurement</th>
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<tr>
<td>- Drilled</td>
<td>Flowmeter</td>
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<td>- Dug</td>
<td>Other (explain)</td>
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<tr>
<td>- Shaft</td>
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<td>- Tunnel</td>
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<tr>
<th>10. Proposed Work</th>
<th>14. Proposed Surveyor name and license number (a surveyor is required for all Well Construction Permits and may be required for some Pump Installation Permits)</th>
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<tbody>
<tr>
<td>- Install New Pump</td>
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<tr>
<td>- Replace Pump</td>
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9. Is this well part of a battery of wells? **Yes** | **No**

14. Proposed Surveyor name and license number (a surveyor is required for all Well Construction Permits and may be required for some Pump Installation Permits)

**PROPPOSED USE**

- 15. Municipal (water systems serving greater than 25 individuals or 15 service connections)
- 16. Domestic - Number of units to be served: 
- 17. Industrial (describe) 
- 18. Irrigation (describe crop and no. of acres), 9 acres 
- 19. Military (describe) 
- 20. Other (describe) 

**OTHER LEGAL REQUIREMENTS**

- If required, items 21 and 22 must be obtained before the Commission can legally issue a permit:
- 21. Conservation District Use Permit (CDUP)
  - **Well is in Conservation District**
  - **Required, CDUP #** 
  - **date approved**
  - **Not Required (attach documentation from OCLC)**
  - **I have not checked with OCLC about whether or not a CDUP is required. I understand that checking with OCLC prior to making this application will expedite my review. I further understand that issues raised by this agency may delay or result in denial of the permit issuance, or revocation of the permit after it is issued.**
- 22. Special Management Area Permit (SMAP)
  - **Required, SMAP #**
  - **date approved**
  - **Not Required (attach documentation from applicable County agency)**
  - **I have not checked with the county about whether or not an SMA Permit is required. I understand that checking with the County prior to making this application may expedite my review. I further understand that issues raised by this agency may delay or result in denial of the permit issuance, or revocation of the permit after it is issued.**

- If required, items 23 and 24 must be obtained before the Commission can legally issue a permit:
- 23. State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources
  - **I have consulted with the HPD regarding potential impacts of well construction activities on historic sites. I have attached applicable documentation from the HPD.**
  - **I have not consulted with the HPD regarding potential impacts of well construction activities on historic sites. I understand that checking with the HPD prior to making this application may expedite my review. I further understand that issues raised by this agency may delay or result in denial of the permit issuance, or revocation of the permit after it is issued.**

**SITE PHOTO**

- **Located at**: 
- **Landowner's Mailing Address**: RR2 Box 3315
  - Pahoa, HI 96778
- **Landowner's Contact**: Debra Welch
  - Phone: 
  - Email: 
- **Well Operator's Phone**: 
- **Well Operator's Fax**: 
- **Well Operator's E-mail**: family@dragonseyeeye

**STATE OF HAWAI‘I**

**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**WATER RESOURCES MANAGEMENT COMMISSION ON WATER RESOURCE MANAGEMENT**

**APPLICATION FOR A WELL CONSTRUCTION / PUMP INSTALLATION PERMIT**

**For Official Use Only:**

**2000 NOV 22 AH 9:49**

**Instructions:** Please print in ink or type and send completed application with attachments to the Commission on Water Resource Management, P.O. Box 821, Honolulu, Hawaii 96809. Application must be accompanied by 6 copies and a non-refundable filing fee of $25.00 payable to the Dept. of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 808-587-0225. For further information and updates to this application form, visit [http://www.hawaii.gov/dlnr/cwm](http://www.hawaii.gov/dlnr/cwm).

**WCPi App. Form 10/05/04**
**PROPOSED WELL SECTION** (Please attach schematic if different from diagram provided below)

Hole Diameter: \_12\_ in.

Elevation at top of casing: \_270\_ ft., msl*

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

Ground Elevation: \_260\_ ft., msl*

Cement Grout: \_190\_ 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 (1.5" for positive displacement; 3" for other methods)

3 \_in.

Rock or Gravel Packing

Material: 
- \_\_ Crushed Basalt
- \_\_ Rounded Gravel

Estimated Water Level

Elevation:

10 \_ft. msl*

Solid Casing: (\_90\_% x (Ground Elev. - Water Level Elev.))

Total Length: 261 \_ft.
Nominal Diameter: 6 \_in.
Wall Thickness: 280 \_ft.
Bottom Elevation: \_260\_ ft., msl*

Open Casing: X Perforated \_Screen

Total Length: 20 \_ft.
Nominal Diameter: 6 \_in.
Wall Thickness: 280 \_ft.
Bottom Elevation: \_21\_ ft., msl*

Open Hole:

Length: \na\_ ft.
Diameter: \na\_ in.
Bottom Elevation: \na\_ ft., msl*

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

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

\[
\text{Elevation} = \frac{(\text{Water Level} - \text{Ground Level})}{4}
\]

Example: Estimated = 2 ft. Water Level Elev.  \_Bottom Elevation of Well Limit = \{ 2 \_ - \frac{4 \text{ft}}{4} \} = \_18.5\_ ft.

**Solid Casing Material:**
- Carbon Steel: compliant with (check one or more):
  - ANSI/WWA C200
  - API Spec. 5L
  - ASTM A53
  - ASTM A139

  And compliant with (check one or more):
  - ASTM A242 (or A606)
  - Type E
  - Type S
  - Grade B
  - Other

- Stainless Steel: (check one):
  - ASTM A409 (production wells)
  - ASTM A312 (monitor wells)

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

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

- Thermoset Plastic: (check one):
  - Filament Wound Resin Pipe conforming to ASTM D2996
  - Centrifugally Cast Resin Pipe conforming to ASTM D2997
  - Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517
  - Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950
  - PTFE Fluorocarbon Tubing conforming to ASTM D3296
  - FEP Fluorocarbon Tubing conforming to ASTM D3296

**Open Casing Material:**
- Carbon Steel: compliant with (check one or more):
  - ANSI/WWA C200
  - API Spec. 5L
  - ASTM A53
  - ASTM A139

  And compliant with (check one or more):
  - ASTM A242 or A606
  - 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
### WELL LOCATION INFORMATION

<table>
<thead>
<tr>
<th>1. STATE WELL NO. (if already assigned)</th>
<th>2. WELL NAME</th>
<th>3. ISLAND</th>
<th>4. TMI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dragons Eye Center Well</td>
<td>Hawaii</td>
<td>81</td>
</tr>
</tbody>
</table>

- The following be attached before this application is accepted as complete (check off if attached):
  - Portion of 7.5-Minute Series USGS topographic map (scale 1:24,000) with well location labeled and include the name of the quad map
  - Property tax map, showing well location referenced to established property boundaries
  - Photograph of the proposed well site
  - A schematic diagram showing the well site, access road and proposed well infrastructure
  - For dug wells, attach a grading plan with cross section profiles showing existing and finish grades

- 5. WELL OPERATOR’S NAME/COMPANY
  - Derrick Welch

- 6. LANDOWNER’S NAME/COMPANY
  - Debra Welch

- RR2 Box 3315
  - Pahoa, HI 96778

- 8. Construction Type
  - Drilled

- 11. Proposed Pumping Rate, gpm
  - 45

- 13. Method of Flow measurement
  - Flowmeter
  - Other (explain)

- 14. Proposed Surveyor name and license number (a surveyor is required for all Well Construction Permits and may be required for some Pump Installation Permits)

- 15. Municipal (water systems serving greater than 25 individuals or 15 service connections)

- 16. Domestic - Number of units to be served: 

- 17. Industrial (describe)

- 18. Irrigation (describe crop and no. of acres) trees, 9 acres

- 19. Military (describe)

- 20. Other (describe)

### OTHER LEGAL REQUIREMENTS if required, Items 21, and 22.

- 21. Conservation District Use Permit (CDUP)
  - Well is in Conservation District
  - Required, CDUP # date approved

- 22. Special Management Area Permit (SMA)
  - Required, SMA # date approved

- 23. State Historic Preservation Division (SHPD) of the Department of Land and Natural Resources
  - I have consulted with the SHPD regarding potential impacts of well construction activities on historic sites. I have attached applicable documentation from the SHPD

- 24. WELL DRILLER (Must be filled out if application is for Well Construction)
  - Derrick’s Well Drilling & Pump Svc
  - C-28001

- 25. PUMP INSTALLER (Must be filled out if application is for Pump Installation)
  - Derrick’s Well Drilling & Pump Svc
  - C-28001

Additional remarks, explanations, etc. (attach additional sheet if more space is needed) Requesting PVC Casing for 280’ depth. Grouting will be poured in lifts.
PROPOSED WELL SECTION (Please attach schematic if different from diagram provided below)

Hole Diameter: __12__ in.

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

- Ground Elevation: __260__ ft., msl

Elevation at top of casing: __270__ ft., msl

Grouting method
- Positive displacement
- Other

Solid Casing: (≥ 90% x (Ground Elev. - Water Level Elev))
- Total Length: __261__ ft.
- Nominal Diameter: __6__ in.
- Wall Thickness: __280__ in.
- Bottom Elevation: __-1__ ft., msl

Open Casing: X Perforated □ Screen
- Total Length: __20__ ft.
- Nominal Diameter: __6__ in.
- Wall Thickness: __280__ in.
- Bottom Elevation: __-21__ ft., msl

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

- Estimated Water Level Elevation: __10__ ft., msl

- Rock or Gravel Packing 90 ft. Material
- Crushed Basalt
- Roun ded Gravel

- Nominal Diameter: __6__ in.
- Wall Thickness: __280__ in.
- Bottom Elevation: __-21__ ft., msl

Total Depth: __280__ ft.

- Cement Grout: __190__ ft.
- Annular space between hole and casing (1 1/2” for positive displacement, 3” for other methods)
- 3 in.

- Open Casing
- Centrifugally Cast Resin Pipe conforming to ASTM D2996
- Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517
- Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950
- PTFE Fluorocarbon Tubing conforming to ASTM D3296
- FEP Fluorocarbon Tubing conforming to ASTM D3296

Open Hole:
- Length: __na__ ft.
- Diameter: __na__ in.
- Bottom Elevation: __na__ ft., msl

- Closed Casing
- 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

Solid Casing Material:
- Carbon Steel: compliant with (check one or more): □ ANSI/AWWA C200 □ API Spec. 5L □ ASTM A53 □ ASTM A139
- Stainless Steel: (check one):
  - ASTM A409 (production wells)
  - ASTM A312 (monitor wells)
  - ASTM A409 (production wells)
  - ASTM A312 (monitor wells)

Open Casing Material:
- Carbon Steel: compliant with (check one or more): □ ANSI/AWWA C200 □ API Spec. 5L □ ASTM A53 □ ASTM A139
- Stainless Steel: (check one):
  - ASTM A409 (production wells)
  - ASTM A312 (monitor wells)

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

\[
\text{Bottom Elevation of Well Limit} = \left( \frac{\text{Water Elevation}}{4} \times \text{Water Level Elev.} \right)
\]

Example: Estimated + 2 ft. Water Level Elev. → Bottom Elevation of Well Limit = \( \left( \frac{2 - \frac{51.29}{4}}{}} \right) \approx 18.5 \text{ ft.} \)

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

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

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