September 25, 2002

Mr. Yoshi Tanabe
Waialua Sugar Company
1116 Whitmore Avenue
Wahiawa, HI 96786

Dear Mr. Tanabe:

Notice of Action
Revocation of Water Use Permits
Pump 10 (Well Nos. 3306-01 to 12; WUP No. 135), TMK 6-5-1:002
Mill Pumps (Well Nos. 3407-07 to 10, 13, 16, 17, 20 & 21; WUP No. 47), TMK 6-7-01:5
Waialua Ground Water Management Area, Oahu

This letter serves as your official notice of action by the Commission on Water Resource Management (Commission) on the above-referenced water use permits.

By a unanimous vote of the Commission at their meeting on September 18, 2002, the Commission:

1. Revoked WUP Nos. 47 and 135.

2. Commended Waialua Sugar Company for their voluntarily actions to expend the effort and financial resources to seal former agricultural wells that are no longer needed and may pose water resource threats, and also for their voluntary relinquishment of unused water allocations so that new reasonable-beneficial uses may proceed.

If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

LN:ss
2. In the event that the tax map key at the location of the water use is changed, the permittee shall notify the Commission in writing of the tax map key change within thirty (30) days after the permittee receives notice of the tax map key change.

MOTION: (RICHARDS/CHING)
To approve the submittal.
UNANIMOUSLY APPROVED.

6. **Waialua Sugar Company REVOCATION OF WATER USE PERMITS, Pump 10** (Well Nos. 3306-01 to 12; WUP No. 135), **Mill Pumps** (Well Nos. 3407-07 to 10, 13, 16, 17, 20 & 21; WUP No. 47), **TMK 6-7-01:5, Waialua Ground Water Management Area, Oahu**

PRESENTATION OF SUBMITTAL: Lenore Nakama

RECOMMENDATIONS:

Staff recommends that the Commission:

1. Revoke WUP Nos. 47 and 135.

2. Commend WSCO for their voluntarily actions to expend the effort and financial resources to seal former agricultural wells that are no longer needed and may pose water resource threats, and also for their voluntary relinquishment of unused water allocations so that new reasonable-beneficial uses may proceed.

MOTION: (DELA CRUZ/NISHIDA)
To approve the submittal.
UNANIMOUSLY APPROVED.

7. **Agribusiness Development Corporation’s Request for Extension of Time to Return Tunnel Water to Waikane Stream, December 28, 2001**

**LEGAL FRAMEWORK, FINDINGS OF FACT AND DECISION AND ORDER, Waiahole Ditch Combined Contested Case Hearing (CCH-OA95-1)**

PRESENTATION OF SUBMITTAL: Edwin Sakoda

**AMENDED RECOMMENDATIONS:**

That the Commission:

1. Find that ADC has shown diligence in proceeding with the project.

2. Extend the deadline for ADC to complete the project, from September 21, 2002 to November 22, 2002.

3. A report on the status of the project be made at the next Commission meeting in October 2002.
STAFF SUBMITTAL

for the meeting of

COMMISSION ON WATER RESOURCE MANAGEMENT

September 18, 2002
Honolulu, Oahu

Waialua Sugar Company
REVOCATION OF WATER USE PERMITS
Pump 10 (Well Nos. 3306-01 to 12; WUP No. 135), TMK 6-5-1:002
Mill Pumps (Well Nos. 3407-07 to 10, 13, 16, 17, 20 & 21; WUP No. 47), TMK 6-7-01:5
Waialua Ground Water Management Area, Oahu

PERMITTEE:
Waialua Sugar Company
1116 Whitmore Avenue
Wahiawa, HI 96786

LANDOWNER:
Same

LOCATION MAP: See Exhibit 1

BACKGROUND:

On September 11, 1981, the Board of Land and Natural Resources approved the certification of Waialua Sugar Company’s (WSCO) existing use of 6.620 mgd and 4.630 mgd from Pump 10 (Well Nos. 3306-01 to 12) and Mill Pumps (Well Nos. 3407-07 to 10, 13, 16, 17, 20 & 21), respectively. The water was used for sugarcane agriculture.

On June 2, 1993, the Commission on Water Resource Management (Commission) approved WSCO’s voluntary reduction in permitted use from the Waialua Ground Water Management Area. This action resulted in the reduction of the allocation for Pump 10 from 6.620 mgd to 5.0 mgd (WUP No. 135). There was no change in the allocation for the Mill Pumps, which remained at 4.630 mgd (WUP No. 47).

On April 25, 2002, WSCO submitted an application to abandon/seal the Pump 10 battery of wells.
On May 9, 2002, a Well Abandonment Permit was issued for the Pump 10 battery, and on August 5, 2002, Well Abandonment Reports were received and accepted by the Commission.

On August 12, 2002, WSCO submitted an application to abandon/seal the Mill Pump battery of wells.

On August 28, 2002, a Well Abandonment Permit was issued for the Mill Pump battery. The permit cover letter notified WSCO that the staff was planning to recommend that the CWRM revoke the water use permit for the source because the source was to be abandoned and sealed.

On or about August 30, 2002, the staff contacted the WSCO representative and confirmed that WSCO has no objections to these proposed revocations.

RECOMMENDATION:

Staff recommends that the Commission:

1. Revoke WUP Nos. 47 and 135.

2. Commend WSCO for their voluntarily actions to expend the effort and financial resources to seal former agricultural wells that are no longer needed and may pose water resource threats, and also for their voluntary relinquishment of unused water allocations so that new reasonable-beneficial uses may proceed.

Respectfully submitted,

LINNEL T. NISHIOKA
Deputy Director

Exhibit 1 (Location Map)
ITEM 1

MINUTES OF THE MAY 19, 1993 MEETING

Unanimously approved as submitted (Cox/Nakata).

ITEM 2

OLD BUSINESS/REPORTS

Ms. Loui reported on two follow up items:

1) Guidelines for modification of the water use permits

Staff finds that Administrative Rules 171-23 are clear regarding changes that require modification. Therefore, it was felt that guidelines are not necessary.

2) Guidelines for Emergency permits

Still being worked on. Eventually, amendments to the Administrative Rules will be made to more clearly address emergency permits.

ITEM 3

WAIALUA SUGAR COMPANY, VOLUNTARY REDUCTION OF PERMITTED WATER USE IN THE WAIALUA GROUND WATER MANAGEMENT AREA, WAIALUA, OAHU

Mr. Sakoda submitted amended recommendations for the Commission review and action (see attached).

Mr. Cox had the following questions:

1) Are the statements regarding "dry years and "wet years" correct for that area and time?

Rainfall data provided by Climate Center was utilized, it was jointly determined that these were wet and dry years based on actual rainfall information.

2) In terms of the water level in the aquifer, what has happened during the periods noted?

The water level data for the Waialua Aquifer is not that good. No problems have been expressed. USGS is drilling in that area to get more data.

3) What length of time is being discussed in Waialua Sugar Company's (Waialua Sugar) statement: "We cannot afford to short ourselves of water. As we understand, we can exceed the permitted use during dry periods as may be required."

No specifics have been set, it would be on a case by case basis.

Mr. Nakata asked:

1) Why was there a discrepancy in the amount of pumpage?

Mr. Sakoda replied that Waialua Sugar was still in the process of converting from furrow to drip. During that time, fields lie fallow longer than normal.

2) What percentage of the acreage was under drip irrigation?
Milton Agadar, Waialua Sugar Irrigation Superintendent stated that approximately 90% is fed by drip irrigation from the Waialua Aquifer.

Mr. Martin provided testimony (see Commission file) urging the Commission to review all data presently available and consider imposing further allocation reductions. He also felt specific quantitative guidelines and protocols for administering dry period extractions need to be part of the State Water Resource Protection Plan and water use permit conditions.

Mr. Cox commented that unless more information was available he would be uncomfortable in trying set a time for the dry period because it would vary considerably from aquifer to aquifer. Mr. Sakoda agreed that a generalized guideline would be difficult to make because every situation would be different.

In regards to the word "voluntary", Mrs. Black suggested "agreement" because if there is no water, how could it be a "voluntary reduction". Mr. Sakoda stated that it is voluntary because the Water Code provides that a water user can voluntarily give up or reduce their allocation without going through the public hearing process.

Mr. Ing asked how the data was obtained for the graph and if all the active pumps were metered. Mr. Sakoda said data was submitted monthly by Waialua Sugar. Mr. Agadar responded that all the pumps are metered.

Mr. Ing asked why the 12-month moving average of pumping was used and if this was an industry practice. In Hawaii, 12-month moving averages have been used by the water industry.

Unanimously approved as amended (Cox/Nakata).

**ITEM 4**

**HOUSING FINANCE AND DEVELOPMENT CORPORATION, APPLICATION FOR A WELL CONSTRUCTION PERMIT, KEOPU-HFDC WELL 1 (WELL NO. 3957-03), NORTH KONA, HAWAII**

The following items were discussed:

1) The nearby Haseko Well is not being pumped but is proposed to be pumped at 700 gallons per minute.

2) This well would be required to follow the CWRM’s pump test protocol, which is a seven day test. The best data possible will be obtained for input into the Groundwater Model currently being developed jointly by USGS/CWRM.

3) If the HFDC wells interfere with the Haseko well, the Hawaii County BWS would not award the full amount of water commitments to the wells.

4) There have been mixed results of the testing of the high level wells. Some have stabilized quickly while others have not.

Mr. Martin expressed concerns regarding ceded lands, the effects on other wells due to a first come-first serve process, and requirements for a water license.

Mr. Tam said public lands are set aside by executive order for county and other state department uses. Setting aside or transferring water to a sub-agency of the state for public purposes is not a transfer to a private entity. Therefore, the use by the counties of state lands for providing municipal water supply does not require a license under the Land Board or the Commission.

Unanimously approved (Cox/Nakata).
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Waialua Sugar Company
Voluntary Reduction of Permitted Water Use in the
Waialua Aquifer System, Waialua Ground Water Management Area
Waialua, Oahu

Background: Present authorized uses of ground water in the Waialua Aquifer System of the
Waialua Ground Water Management Area (GWMA) total 43.114 mgd. The sustainable yield for
the Waialua Aquifer System (formerly called the Waialua Subarea) was originally 60 mgd when
the Board of Land and Natural Resources adopted the sustainable yield in July 1981. The
Commission on Water Resource Management, in October 1991, accepted an updated table of
sustainable yields for Oahu. Under the updated table, the sustainable yield for the Waialua
Aquifer System was reduced from 60 mgd to 40 mgd. The new sustainable yield was formally
adopted by the Commission on March 17, 1993. Authorized uses now exceed the sustainable
yield by 3.114 mgd.

The Commission staff has reviewed the authorized uses versus the actual uses in the
entire Waialua GWMA. Allocations in the Waialua Aquifer System are as follows:

<table>
<thead>
<tr>
<th>Allocations</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Waialua Sugar Company</td>
<td>39.940 mgd</td>
</tr>
<tr>
<td>Honolulu BWS</td>
<td>2.730 mgd</td>
</tr>
<tr>
<td>Private Users</td>
<td>0.444 mgd</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>43.114 mgd</strong></td>
</tr>
</tbody>
</table>

Preliminary review of Waialua Sugar Company's pumpage data indicates that they have
used less than 30 mgd of their 40 mgd allocation over the last five years (see attached graph).
Water use by the Honolulu BWS and private users has not changed significantly.

Waialua Sugar Company calculated their irrigation requirements using the same
methodology that Oahu Sugar Company used to determine their irrigation requirements in the
Pearl Harbor area. Irrigation requirements were calculated for dry years (1983 - 1986) and wet
years (1988 - 1991). Pumping required was calculated to be about 46 to 48 mgd for dry years
and about 35 to 36 mgd for wet years.

Waialua Sugar Company has reviewed their water use over the past 20 years and, based
on historical water use, conversion to drip irrigation, and other factors, has voluntarily reduced
its permitted water use in the Waialua Aquifer System from 39.9 mgd to 36.0 mgd effective June
1, 1993. This voluntary reduction reduces the allocations in the Waialua Aquifer System to
39.174 mgd, which is less than the sustainable yield of 40 mgd, and allows an additional 0.826
mgd to be allocated.

In voluntarily reducing its allocation, Waialua Sugar Company states that they "want to
be on record that sugar production is highly dependent upon water; without adequate water,
yields will suffer. We cannot afford to short ourselves of water. As we understand, we can
exceed the permitted use during dry periods as may be required" (See attached letter).

ITEM 3
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Additional Recommendations
Waialua Sugar Company
Voluntary Reduction of Permitted Water Use in the
Waialua Aquifer System, Waialua Ground Water Management Area
Waialua, Oahu

RECOMMENDATIONS:

1. That the Commission accept Waialua Sugar Company's voluntary reduction of permitted use in the Waialua Aquifer System, from 39.940 to 36.0 mgd, from the following sources:

<table>
<thead>
<tr>
<th>SOURCE</th>
<th>WELL NUMBER</th>
<th>EXISTING ALLOCATION</th>
<th>PROPOSED ALLOCATION</th>
<th>REDUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pump 3</td>
<td>3505-01 to 20</td>
<td>3.052 mgd</td>
<td>1.552 mgd</td>
<td>-1.500 mgd</td>
</tr>
<tr>
<td>Pump 7</td>
<td>3407-11, 12</td>
<td>3.750 mgd</td>
<td>2.930 mgd</td>
<td>-0.820 mgd</td>
</tr>
<tr>
<td>Pump 10</td>
<td>3306-01 to 12</td>
<td>6.620 mgd</td>
<td>5.000 mgd</td>
<td>-1.620 mgd</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>13.422 MGD</td>
<td>9.482 MGD</td>
<td>-3.940 MGD</td>
</tr>
</tbody>
</table>

2. That the Commission consider giving Waialua Sugar Company priority to reobtain its permitted level of water usage over any other application should more water become available in the future. This recommendation is based on Section 13-171-19(d) of the Water Code administrative rules which states:

"A permitted user of water in an existing water management area, with a continuous reduced water usage, shall be given priority to reobtain its permitted level of water usage over any other application; provided that the use remains the same and is reasonable and beneficial and water is available".
Chairperson and Members  
Commission on Water Resource Management  
June 2, 1993

RECOMMENDATION:

That the Commission accept Waialua Sugar Company's voluntary reduction of permitted use in the Waialua Aquifer System, from 39.940 to 36.0 mgd. The 3.94 mgd reduction will be taken from sources in the Waialua Aquifer System presently being determined by Waialua Sugar Company. Staff will be working with them to determine the source-by-source reductions and will bring the results to the Commission for approval.

Respectfully submitted,

RAE M. LOUI  
Deputy Director

Attach.

APPROVED FOR SUBMITTAL

KEITH W. AHUE, Chairperson
WAIALUA AQUIFER SYSTEM
WSCO. Use Vs. Allocation

WUP = 39.940 mgd
11.418 mgd

--- monthly use  --- 12-mon mov ave
May 12, 1993

Ms. Rae Loui
Deputy Director
State Water Commission
P. O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Loui:

We have had several meetings over the past months to discuss Waialua Sugar Company's permitted water use from the Waialua aquifer. Waialua Sugar has a permitted use of 39.9 million gallons per day. When you add the permitted use of the City Water Department, you have a combined use which is higher than the sustainable yield.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Waialua Sugar Company</td>
<td>39.9</td>
</tr>
<tr>
<td>Board of Water Supply</td>
<td>1.2</td>
</tr>
<tr>
<td></td>
<td>41.1</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Sustainable Yield</td>
<td>40.0</td>
</tr>
<tr>
<td>Over Permitted Use</td>
<td>(3.1)</td>
</tr>
</tbody>
</table>

We have reviewed our water use over the past 20 years and while we have peaked at times over our permitted use, it appears we could reduce the permitted use given recent historical water use, conversion to drip irrigation and other factors.

Before going further, we want to be on record that sugar production is highly dependent upon water; without adequate water, yields will suffer. We cannot afford to short ourselves of water. As we understand, we can exceed the permitted use during dry periods as may be required.

Based on the above discussions and research into this matter, Waialua Sugar Company is voluntarily reducing its permitted water use in the Waialua acquifer from our current 39.9 million gallons per day to 36.0 million gallons per day effective June 1/93.

Sincerely,

Michael F. O'Brien
President
Dole Food Hawaii

cc: M. Agader
    J. A. Russell
    G. Yim
State of Hawaii  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
Division of Water and Land Development  
Honolulu, Hawaii  

September 11, 1981

Chairman and Members  
Board of Land and Natural Resources  
State of Hawaii  
Honolulu, Hawaii

Gentlemen:

Certificate of Ground Water Withdrawals and Uses,  
Wai'alu Ground Water Control Area, Oahu

The Wai'alu Ground Water Control Area was designated by the Board of Land and Natural Resources on February 27, 1981 under authority of Chapter 177, ERS, and Chapter 158 of Title 13, Administrative Rules entitled "Rules for the Control of Ground Water Use in the State of Hawaii". The Department's regulatory procedures provide for water users to declare their existing water uses within a ninety-day period which ended June 4, 1981 and allows the Board 180 days to certify the declared uses.

The recommended certification of total annual, average daily, and maximum daily withdrawals for individual wells and/or well fields is tabulated in the attachment, "Certificate of Ground Water Withdrawals and Uses, Wai'alu Ground Water Control Area", for the Wai'alu, Mokuleia, and Kawailoa Subareas. A comparison of the recommended quantity for certification and the sustainable yield adopted by the Board on July 24, 1981 is tabulated below:

<table>
<thead>
<tr>
<th>Subarea</th>
<th>Sustainable Yield (mgd)</th>
<th>Recommended Certification (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wai'alu</td>
<td>60</td>
<td>51.512</td>
</tr>
<tr>
<td>Mokuleia</td>
<td>20</td>
<td>7.753</td>
</tr>
<tr>
<td>Kawailoa</td>
<td>10</td>
<td>5.250</td>
</tr>
</tbody>
</table>

The remaining ground water supplies may be withdrawn by obtaining permits from the Board of Land and Natural Resources.

RECOMMENDATION:

That the Board certify the existing withdrawals and uses for each well tabulated on the attached "Certificate of Ground Water Withdrawals and Uses, Wai'alu Ground Water Control Area" dated September 11, 1981, subject to any special conditions and applicable laws, rules and regulations.

Respectfully submitted,

[Signature]

ROBERT T. CHEEK  
Manager-Chief Engineer

APPROVED FOR SUBMITTAL:

[Signature]  
SUSUMU ONO, Chairman

Approved by the Board of Land & Natural Resources at the meeting held on 9/1/81

ITEM 2-5

C8
### Waialua Ground Water Control Area

#### NAIALUA Subarea

<table>
<thead>
<tr>
<th>User/Source</th>
<th>State Well No.</th>
<th>Total Wells</th>
<th>Source Capacity (mgd)</th>
<th>5-yr. Ave. Withdrawal (mgd)</th>
<th>Preserved Use</th>
<th>Maximum Daily (mgd)</th>
<th>Total Annual (mgd)</th>
<th>Average Daily (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Waialua Sugar Co.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump 1</td>
<td>3407-04, 05, 06</td>
<td>5</td>
<td>Agr. 6.0</td>
<td>2.33</td>
<td>Agr. 6.0</td>
<td>650.45</td>
<td>21.14</td>
<td>2.33</td>
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<tr>
<td>Pump 2</td>
<td>3307-01 to 06, 07 to 10</td>
<td>9</td>
<td>Agr./Dom. 10.0</td>
<td>4.27</td>
<td>Agr./Dom. 10.0</td>
<td>1,595.05*</td>
<td>4.37*</td>
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<tr>
<td>Pump 2A</td>
<td>3307-07, 11 to 14</td>
<td>5</td>
<td>Agr./Dom. 7.0</td>
<td>4.45</td>
<td>Agr./Dom. 7.0</td>
<td>1,308.49</td>
<td>3.58*</td>
<td></td>
</tr>
<tr>
<td>Pump 3</td>
<td>35-5-01 to 20</td>
<td>20</td>
<td>Agr./Dom. 7.0</td>
<td>2.16</td>
<td>Agr./Dom. 7.0</td>
<td>1,112.98</td>
<td>3.05*</td>
<td></td>
</tr>
<tr>
<td>Pump 7</td>
<td>3407-11, 12, 13, 14</td>
<td>4</td>
<td>Agr./Dom. 3.5</td>
<td>3.23</td>
<td>Agr./Dom. 3.5</td>
<td>1,368.75</td>
<td>3.75</td>
<td></td>
</tr>
<tr>
<td>Pump 8</td>
<td>3506-02, 04</td>
<td>2</td>
<td>Agr./Dom. 3.0</td>
<td>1.66</td>
<td>Agr./Dom. 3.0</td>
<td>605.90*</td>
<td>1.66*</td>
<td></td>
</tr>
<tr>
<td>Pump 9</td>
<td>3466-02</td>
<td>1</td>
<td>Agr. 0.75</td>
<td>0.16</td>
<td>Agr. 0.75</td>
<td>58.4</td>
<td>0.16</td>
<td></td>
</tr>
<tr>
<td>Pump 10</td>
<td>3307-01 to 12</td>
<td>12</td>
<td>Agr. 12.0</td>
<td>0.62</td>
<td>Agr. 12.0</td>
<td>2,416.30</td>
<td>6.62</td>
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<td>Pump 17</td>
<td>3404-02</td>
<td>1</td>
<td>Agr./Dom. 15.0</td>
<td>0.63</td>
<td>Agr./Dom. 15.0</td>
<td>2,992.37</td>
<td>0.198</td>
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</tr>
<tr>
<td>Mill Pumps</td>
<td>3407-07 to 19, 16, 17, 20, 21</td>
<td>8</td>
<td>Agr. 10.0</td>
<td>0.82</td>
<td>Agr. 10.0</td>
<td>1,649.95</td>
<td>4.63</td>
<td></td>
</tr>
<tr>
<td>Pump 24</td>
<td>3102-02</td>
<td>1</td>
<td>Agr. 4.50</td>
<td>2.50</td>
<td>Agr. 4.50</td>
<td>941.70</td>
<td>2.50</td>
<td></td>
</tr>
<tr>
<td>Pump 25</td>
<td>2203-01</td>
<td>1</td>
<td>Agr. 4.50</td>
<td>3.10</td>
<td>Agr. 4.50</td>
<td>1,131.50</td>
<td>3.10</td>
<td></td>
</tr>
<tr>
<td>Pump 26</td>
<td>2303-02</td>
<td>1</td>
<td>Agr. 4.50</td>
<td>2.76</td>
<td>Agr. 4.50</td>
<td>1,007.40</td>
<td>2.76</td>
<td></td>
</tr>
<tr>
<td><strong>Subtotal (Waialua Sugar Co.)</strong></td>
<td></td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td>89.75</td>
<td>48.38</td>
<td>89.75</td>
</tr>
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**Board of Water Supply**

<table>
<thead>
<tr>
<th>User/Source</th>
<th>State Well No.</th>
<th>Total Wells</th>
<th>Source Capacity (mgd)</th>
<th>5-yr. Ave. Withdrawal (mgd)</th>
<th>Preserved Use</th>
<th>Maximum Daily (mgd)</th>
<th>Total Annual (mgd)</th>
<th>Average Daily (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waialua Wells</td>
<td>3405-01, 02</td>
<td>2</td>
<td>Mun. 4.32</td>
<td>1.72</td>
<td>Mun. 4.32</td>
<td>621.65</td>
<td>1.72</td>
<td></td>
</tr>
</tbody>
</table>

**Private Users**

<table>
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<tr>
<th>User/Source</th>
<th>State Well No.</th>
<th>Total Wells</th>
<th>Source Capacity (mgd)</th>
<th>5-yr. Ave. Withdrawal (mgd)</th>
<th>Preserved Use</th>
<th>Maximum Daily (mgd)</th>
<th>Total Annual (mgd)</th>
<th>Average Daily (mgd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kawaguchi, Howard</td>
<td>3506-07</td>
<td>1</td>
<td>Agr. 0.180</td>
<td>0.058</td>
<td>Agr. 0.180</td>
<td>21.17</td>
<td>0.058</td>
<td></td>
</tr>
<tr>
<td>Kawamoto, Kongo</td>
<td>3405-03</td>
<td>1</td>
<td>Agr. Nat. Flow</td>
<td>No data</td>
<td>Agr. Nat. Flow</td>
<td>36.5</td>
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**TOTAL - Waialua Subarea**

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<th>State Well No.</th>
<th>Total Wells</th>
<th>Source Capacity (mgd)</th>
<th>5-yr. Ave. Withdrawal (mgd)</th>
<th>Preserved Use</th>
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*For Agr./Dom. uses, specific quantities for each use are to be prorated when additional information becomes available.*
### Waialua GWCA

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<th>State Well No.</th>
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<th>Source Capacity (mgd)</th>
<th>5-yr. Ave Withdrawal (mgd)</th>
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*For Agr./Dom. uses, specific quantities for each use are to be prorated when additional information becomes available.
August 28, 2002

Mr. Bill Moore
Beylik Drilling, Inc.
91-259-A Olai Street
Kapolei, HI 96707

Dear Mr. Moore:

Well Abandonment Reports for Well Nos. 3306-01 to 12

We received your Well Abandonment Reports for the sealing of the Waialua Sugar Pump 10 Battery (Well Nos. 3306-01 to 12) on August 5, 2002 and acknowledge that it is complete. Thank you for your attention to this matter.

If you have any questions, please contact Lenore Nakama of the Commission staff at 587-0218.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

LN:ss

c: Yoshi Tanabe, Waialua Sugar Co.
TO

COMMISSION ON WATER RESOURCE MANAGEMENT

P.O. BOX 621

HONOLULU, HI. 96809

WE ARE SENDING YOU □ Attached □ Under separate cover via __________________ the following items:

□ Shop drawings □ Prints □ Plans □ Samples □ Specifications
□ Copy of letter □ Change order □ REPORTS

COPIES DATE NO. DESCRIPTION

12 8/2/02 ABANDONMENT REPORTS

1 8/2/02 PERMIT

THESE ARE TRANSMITTED as checked below:

□ For approval □ Approved as submitted □ Resubmit ______ copies for approval
□ For your use □ Approved as noted □ Submit ______ copies for distribution
□ As requested □ Returned for corrections □ Return ______ corrected prints
□ For review and comment □ ____________________________
□ FOR BIDS DUE ____________________________ □ PRINTS RETURNED AFTER LOAN TO US

REMARKS

ALL WELLS WERE SUCCESSFULLY SEALED. WE WERE SURPRISED BY THE QUANTITIES.
The lower formations were cavernous and required repeated topping off.

GOOD THING WE QUOTED TIME AND MATERIAL.
WELL CONSTRUCTION PERMIT TO ABANDON/SEAL

Waialua Sugar Pump 10 Battery, Well No. 3306-01 to 12

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 abandonment/sealing of Waialua Sugar Pump 10 Battery (Well Nos. 3306-01 to 12) along Poamoho Stream, Oahu, TMK 6-5-1:002, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, shall be notified in writing before any work covered by this permit commences.

2. The owner or operator of any well which has been determined by the department or voluntarily declared by the owner or operator to be abandoned as defined in §13-168-2, after written notification, shall be required, at owner's or operator's expense, to re-case, cement, plug back, cap, or otherwise repair the well or fill and seal the well with cement in a manner approved by the commission.

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

4. The Well Abandonment Report form (attached) shall be submitted to the Commission on Water Resource Management within sixty (60) days after completion of the work.

5. The permittee shall comply with all applicable laws, rules, and ordinances.

6. The sealing shall be completed within two (2) years.

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

Date of Approval: April 25, 2002
Expiration Date: None

GILBERT'S. COLOMA-AGARAN, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day.

Permittee’s Signature: __________________________ Date: 05/22/02
Printed Name: Yoshiaki Tanabe Firm or Title: Waialua Sugar Company - VP
Contractor’s Signature: __________________________ License #: AC-21896 Date: 5-23-02
Printed Name: WILLIAM C. MOORE Firm or Title: BEYLIK DRILLING, INC. - RME

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

Attachment

USGS
Department of Health/ Safe Drinking Water, Wastewater, and Clean Water Branches
Honolulu Board of Water Supply
Yoshi Tanabe, Waialua Sugar Co.
George H. Moore

Applicant (print)

Yoshi Funago

C-57 Lic. No.

Ac-21896

Signature

Date 7/31/02

Well Abandonment Contractor (print) BEYLIK DRILLING INC.

13 TONS

GRAVEL 13 TONS

1:1 GROUT 21 CU. YARDS

SAND FILL 252.7 TO 247.7 5'

1:1 GROUT 247.7 TO TOP OF TEE 247.7'

GRAVEL FILL 312.7 TO 252.7 60'

Well Abandonment

Signature

Date 7/31/02

WAR Form (2.8/00)
1. State Well No. 3306-02  
2. Location / Address ALONG POAMOHO STREAM  
3. Contractor BEYLIK DRILLING, INC.  
4. Type of Rig / Construction 15 TON BOOM TRUCK  

Well Name WAIALUA SUGAR PUMP 10  
Island OAHU  
TMK 6-5-1:002  
Name of driller who performed work JOHN MOLE  
Date of well sealing completion 5/23/02  

Finished Grade Elevation 1.5 ft.  
Casing Diameter 12 in.  

Check Material Used  
Grout:  
☐ Cement  
☐ Sand/Cement Ratio 1 / 1  
GRAVEL  
FILL  
SAND PLUG  

Measured Depth of Blank Casing 114 ft.  
Total Measured Depth 320.6 ft.  

Measured Depth of Perforated Casing N/A ft.  
Measured Depth of Open Hole 206.6 ft.  

Remarks:  
GRAVEL FILL 320.6 TO 278.6 42'  
SAND PLUG 278.6 TO 273.6 5'  
1:1 GROUT 273 TO TOP OF TEE 273.6'  
GRAVEL 11 TONS  
1:1 GROUT 21 CU. YARDS  

Well Abandonment  
Contractor (print) BEYLIK DRILLING, INC.  
Signature  
Applicant (print) WAIALUA SUGAR CO. YOSHI TANABE  
Signature  

C-57 Lic. No. AC-21896  
Date 7/26/02  
Date 7/31/02  

WAR Form (2800)
1. State Well No. 3306-03 / Well Name WAIALUA SUGAR PUMP 10
2. Location / Address ALONG POAMOHO STREAM Island OAHU TMK 6-5-1:002
3. Contractor BEYLIK DRILLING INC. Name of driller who performed work JOHN MOLE
4. Type of Rig / Construction 15 TON BOOM TRUCK Date of well sealing completion 5/28/02

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<td>Grout Seal: □ Cement</td>
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<tr>
<td>☑ Sand/Cement Ratio 1 / 1</td>
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<table>
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<th>Total Measured Depth</th>
<th>318.9 ft</th>
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</thead>
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- Measured Depth of Blank Casing 110.8 ft
- Measured Depth of Perforated Casing N/A ft
- Measured Depth of Open Hole 210.6 ft

Remarks:
- GRAVEL FILL 318.9 TO 265.9 53'
- SAND PLUG 265.9 TO 260.9 5'
- 1:1 GROUT 260.9 TO TOP OF TEE 260.9'
- GRAVEL FILL 18 TONS
- 1:1 GROUT 56 CU. YARDS

Well Abandonment
Contractor (print) BEYLIK DRILLING INC C-57 Lic. No. AC-21896
Signature

Applicant (print) WAIALUA SUGAR CO. YOSHI TANABE
Signature

Date 7/26/02
Date 7/31/02

WAR Form (2/00)
**State of Hawaii**
**COMMISSION ON WATER RESOURCE MANAGEMENT**
**Department of Land and Natural Resources**

**WELL ABANDONMENT REPORT**

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 587-0225. For further information and updates to this application form, visit http://www.state.hi.us/dlnr/cwrm.

1. State Well No. 3306-04 / Well Name WAIALUA SUGAR PUMP 10

2. Location / Address ALONG POAMOHO STREAM Island OAHU TMK 6-5-1:002

3. Contractor BEYLIK DRILLING INC. Name of driller who performed work JOHN MOLE

4. Type of Rig / Construction 15 TON BOOM TRUCK Date of well sealing completion 5/29/02

---

```
1. State Well No. 3306-04 / Well Name WAIALUA SUGAR PUMP 10
2. Location / Address ALONG POAMOHO STREAM Island OAHU TMK 6-5-1:002
3. Contractor BEYLIK DRILLING INC. Name of driller who performed work JOHN MOLE
4. Type of Rig / Construction 15 TON BOOM TRUCK Date of well sealing completion 5/29/02
```

---

### Check Material Used

- **Grout Seal:**
  - [ ] Cement
  - [x] Sand/Cement Ratio 1 / 1

### Measured Depths

- **Total Measured Depth:** 342.2 ft.
- **Measured Depth of Blank Casing:** 110.29 ft.
- **Measured Depth of Perforated Casing:** N/A ft.
- **Measured Depth of Open Hole:** 231.9 ft.

### Remarks:

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<tr>
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<td>1:1 GROUT</td>
<td>24 CU. YARDS</td>
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### Well Abandonment

- **Contractor (print):** BEYLIK DRILLING INC.
- **Signature:** [Signature]
- **Date:** 7/26/02
- **Applicant (print):** WHALUA SUGAR CO YOUSH TAIHEE
- **Signature:** [Signature]
- **Date:** 7/26/02

---

WAR Form (2/8/00)
State of Hawaiʻi  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources

WELL ABANDONMENT REPORT

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---

1. State Well No. 3306-05  
2. Well Name: WAIALUA SUGAR PUMP 10
3. Location / Address: ALONG POAMOHO STREAM  
   Island: OAHU  
4. Contractor: BEYLIK DRILLING INC.
5. Type of Rig / Construction: 15 TON BOOM TRUCK  
6. Date of well sealing completion: 5/29/02

![Diagram with measurements]

Finished Grade Elevation: 1.5 ft.
Casing Diameter: 12 in.
Total Measured Depth: 315.2 ft.
Measured Depth of Blank Casing: 110.29 ft.
Measured Depth of Perforated Casing: NA ft.
Measured Depth of Open Hole: 204.9 ft.

Remarks:
- GRAVEL FILL: 315.2 TO 253.2 ft.
- SAND PLUG: 253.2 TO 248.2 ft.
- 1:1 GROUT: 248.2 TO TOP OF TEE: 248.2 ft.
- GRAVEL FILL: 10 TONS
- 1:1 GROUT: 21 CU. YARDS

---

Well Abandonment
Contractor: BEYLIK DRILLING INC.
C-57 Lic. No.: AC-21896
Signature: [Signature]
Date: 5/29/02

Applicant: [Signature]
Date: 6/21/02

WAR Form (2/8/00)


**State of Hawaii**  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources

**WELL ABANDONMENT REPORT**

**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 587-0225. For further information and updates to this application form, visit [http://www.state.hi.us/dlnr/cwrm](http://www.state.hi.us/dlnr/cwrm).

---

1. State Well No. 3306-06  
   Well Name WAIALUA SUGAR PUMP 10

2. Location / Address ALONG POAMOHO STREAM  
   Island OAHU  
   TMK 6-5-1

3. Contractor BEYLIK DRILLING INC.  
   Name of driller who performed work JOHN MOLE

4. Type of Rig / Construction 15 TON BOOM TRUCK  
   Date of well sealing completion 5/30/02

---

### Remarks:

- **GRAVEL FILL** 320.5 TO 256.5  
  Measured Depth of Blank Casing 106.8 ft

- **SAND PLUG** 256.5 TO 251.5  
  Measured Depth of Perforated Casing N/A ft

- **1:1 GROUT** 251.5 TO TOP OF TEE 251.5 ft

- **GRAVEL FILL** 21 TONS  
  Measured Depth of Open Hole 213.7 ft

- **1:1 GROUT** 21 CU. YARDS

---

**Well Abandonment**  
**Contractor (print)** BEYLIK DRILLING INC.  
**C-57 Lic. No.** AC-21896

**Signature** [Signature Image]  
**Date** 7/26/02

**Applicant (print)** WAIALUA SUGAR CO. YOSHI TANAKA

**Signature** [Signature Image]  
**Date** 07/05/02
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
WELL ABANDONMENT REPORT

Instructions: Please print in ink or type and send completed report (with attachments, if applicable) to the Commission on Water Resource Management, P.O. Box 821, Honolulu, Hawaii 96809. The Commission may not accept incomplete reports. This form shall be submitted within 60 days of the completion of work. For assistance, please consult the Hawaii Well Construction and Pump Installation Standards or call the Regulation Branch at 587-0225. For further information and updates to this application form, visit http://www.state.hi.us/dlnr/cwrm.

1. State Well No. 3306-07  
   Well Name WAIALUA SUGAR PUMP 10
2. Location / Address ALONG POAMOHO STREAM  
   Island OAHU  
   TMK 6-5-1:002  
3. Contractor BEYLIK DRILLING INC.  
   Name of driller who performed work JOHN MOLE  
4. Type of Rig / Construction 15 TON BOOM TRUCK  
   Date of well sealing completion 5/30/02

Finished Grade Elevation 1.5 ft.
Casing Diameter 12 in.

Check Material Used
Grout Seal:  
- Cement  
- Sand/Cement Ratio 1/1

Total Measured Depth 306.1 ft.

Measured Depth of Blank Casing 114.1 ft.
Measured Depth of Perforated Casing N/A ft.
Measured Depth of Open Hole 191.9 ft.

Remarks:
- GRANITE FILL 306.1 TO 256.1 50'  
- SAND PLUG 256.1 0'  
- 1:1 GROUT 256.1 TO TOP OF TEE 256.1'  
- GRANITE FILL 12 TONS  
- 1:1 GROUT 21 CU. YARDS

Well Abandonment
Contractor (print) BEYLIK DRILLING INC.  
C-57 Lic. No. AC-21896
Signature  
Date 7/26/02

Applicant (print) WAIALUA SUGAR CO. YOSHI TAWASE
Signature  
Date 07/31/02

WAR Form (2/000)
**State of Hawaii**
**COMMISSION ON WATER RESOURCE MANAGEMENT**
Department of Land and Natural Resources

**WELL ABANDONMENT REPORT**

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 587-0225. For further information and updates to this application form, visit http://www.state.hi.us/dlnr/cwrm.

---

1. **State Well No.** 3306-08  
   **Well Name** WAIALUA SUGAR PUMP 10

2. **Location / Address** ALONG POAMOHO STREAM  
   **Island** OAHU  
   **TMK** 6-5-1:002

3. **Contractor** BEYLIK DRILLING INC.  
   **Name of driller who performed work** JOHN MOLE

4. **Type of Rig / Construction** 15 TON BOOM TRUCK  
   **Date of well sealing completion** 6/10/02

---

**Finished Grade Elevation** 1.5 ft.

**Casing Diameter** 12 in.

**Check Material Used**

- **GROUT Seal:**  
  - Cement
  - Sand/Cement Ratio 1:1

---

**Total Measured Depth** 315.8 ft.

**Measured Depth of Blank Casing** 109.25 ft.

**Measured Depth of Open Hole** 206.5 ft.

**Remarks:**
- GRAVEL FILL 315.8 TO 271.8 44'  
- SAND PLUG 271.8 TO 269.8 2'  
- 1:1 GROUT 269.8 TO TOP OF TEE 269'  
- GRAVEL FILL 10 TONS  
- 1:1 GROUT 22 CU. YARDS

---

**Well Abandonment**

**Contractor (print)** BEYLIK DRILLING INC.  
**C-57 Lic. No.** AC-21896

**Signature**  
**Date** 7/26/02

**Applicant (print)** WAIALUA SUGAR CO. YOSHITAKE

**Signature**  
**Date** 6/31/01

---

WAR Form (2/000)
1. State Well No. 3306-09  
Well Name WAIALUA SUGAR PUMP 10

2. Location / Address ALONG POAMOHO STREAM Island OAHU TMK 6-5-1

3. Contractor BEYLIK DRILLING INC. Name of driller who performed work JOHN NOLE

4. Type of Rig / Construction 15 TON BOOM TRUCK Date of well sealing completion 6/10/02

Finished Grade Elevation 1.5 ft.
Casing Diameter 12 in.

Check Material Used
Grout Seal: ☐ Cement ☒ Sand/Cement Ratio 1/1

Total Measured Depth 316.6 ft.

Measured Depth of Blank Casing 107.6 ft.
Measured Depth of Perforated Casing N/A ft.
Measured Depth of Open Hole 209 ft.

Remarks:
GRAVEL FILL 316.9 TO 246 70'
SAND PLUG 246 TO 243 3'
243 TO TOP OF TEE 243.6'
GRAVEL FILL 9 TONS
1:1 GROUT 22 CU. YARDS

Well Abandonment Contractor (print) BEYLIK DRILLING INC. C-57 Lic. No. AC-21896

Signature [Signature]
Date 7/26/02

Applicant (print) WAIALUA SUGAR CO., YOSHIO TANAKA

Signature [Signature]
Date 07/26/02
State of Hawai’i  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  
WELL ABANDONMENT REPORT

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 587-0225. For further information and updates to this application form, visit http://www.state.hi.us/dlnr/cwrm.

1. State Well No. 3306-10  
   Well Name WAIALUA SUGAR PUMP 10

2. Location / Address ALONG POAMOHO STREAM  
   Island OAHU  
   TMK 6-5-1:002

3. Contractor BEYLIK DRILLING INC.  
   Name of driller who performed work JOHN MOLE

4. Type of Rig / Construction 15 TON BOOM TRUCK  
   Date of well sealing completion 6/12/02

---

| Remarks: |  
|-------------------------------|-------------------------------|-------------------------------|
| GRAVEL FILL 309.2 TO 261.2 | 48'  |  
| SAND PLUG 261.2 TO 258.2 | 3'  |  
| 1:1 GROUT 258 TO TOP OF TEE | 258'  |  
| GRAVEL FILL 11 TONS |  
| 1:1 GROUT 22 CU. YARDS |  

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Well Abandonment  
Contractor (print) BEYLIK DRILLING INC.  
C-57 Lic. No. AC-21896

Signature [Signature]  
Date 7/26/02

Applicant (print) [Name]  
Signature [Signature]  
Date 7/21/02
WELL ABANDONMENT REPORT

1. State Well No. 3306-11  
2. Well Name WAIALUA SUGAR PUMP 10  
3. Location / Address ALONG POAMOHO STREAM  
4. Island OAHU  
5. Contractor BEYLIK DRILLING INC.  
6. Name of driller who performed work JOHN MOLE  
7. Type of Rig / Construction 15 TON BOOM TRUCK  
8. Date of well sealing completion 6/14/02  
9. Casing Diameter 12 in.  
10. Finished Grade Elevation 1.5 ft.

Check Material Used

Grout Seal:  
- Cement  
- Sand/Cement Ratio 1/1  

Total Measured Depth 305.7 ft.

Measured Depth of Blank Casing 20 - 65 ft.

Measured Depth of Perforated Casing N/A ft.

Measured Depth of Open Hole 185 ft.

Remarks:

GRAVEL FILL 305.7 TO 255.7 50'
SAND PLUG 255.7 TO 252.7 3'
1:1 GROUT 252.7 TO TOP OF TEE 252'
GRAVEL FILL 12 TONS
1:1 GROUT 22 CU. YARDS

Well Abandonment
Contractor (print) BEYLIK DRILLING INC.
C-57 Lic. No. AC-21896
Signature W.C. MOORE Date 7/26/02

Applicant (print) WAIALUA SUGAR PUMP 10

Signature YOKO TAGASHI Date 07/31/02
1. State Well No. 3306-12  
Well Name WAIALUA SUGAR PUMP 10

2. Location / Address ALONG POAMOHO STEAM  
Island OAHU  
TMK 6-5-1:002

3. Contractor BEYLIK DRILLING INC.  
Name of driller who performed work JOHN MOLE

4. Type of Rig / Construction 15 TON BOOM TRUCK  
Date of well sealing completion 6/14/02

Finished Grade Elevation 1.5 ft

Casing Diameter 12 in.

Check Material Used
Grout Seal: [ ] Cement  
[ ] Sand/Cement Ratio 1/1

Total Measured Depth 315.8 ft

315.8 TO -314.3 NSL

Measured Depth of Blank Casing 112.9 ft

Measured Depth of Perforated Casing N/A ft

Measured Depth of Open Hole 202.9 ft

Remarks:

GRAVEL FILL 315 TO 251.8  64'
SAND PLUG 251.8 TO 248.8  3'
1:1 GROUT 248.8 TO TOP OF TEE 248'

GRAVEL FILL 15 TON

1:1 GROUT 28 CU. YARDS

Well Abandonment
Contractor (print) BEYLIK DRILLING INC.
C-57 Lic. No. AC-21896
Signature [Signature]
Date 7/26/02

Applicant (print) WAIALUA SUGAR CO. YOSHI TANABE
Signature [Signature]
Date 7/31/02
**WELL CONSTRUCTION PERMIT TO ABANDON/SEAL**

**Waialua Sugar Pump 10 Battery, Well No. 3306-01 to 12**

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 abandonment/sealing of Waialua Sugar Pump 10 Battery (Well Nos. 3306-01 to 12) Along Poamoho Stream, Oahu, TMK 6-5-1:002, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, shall be notified in writing before any work covered by this permit commences.

2. The owner or operator of any well which has been determined by the department or voluntarily declared by the owner or operator to be abandoned as defined in §13-168-2, after written notification, shall be required, at owner's or operator's expense, to re-case, cement, plug back, cap, or otherwise repair the well or fill and seal the well with cement in a manner approved by the commission.

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

4. The Well Abandonment Report form (attached) shall be submitted to the Commission on Water Resource Management within sixty (60) days after completion of the work.

5. The permittee shall comply with all applicable laws, rules, and ordinances.

6. The sealing shall be completed within two (2) years

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

Date of Approval: April 25, 2002
Expiration Date: None

GILBERT S. COLOMA-AGARAN, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day.

Permittee’s Signature: ______________________ Date: 05/22/02
Printed Name: Yoshiaki Tanabe Firm or Title: Waialua Sugar Company - VP
Contractor’s Signature: ______________________ License #: AC-21896 Date: 5-23-02
Printed Name: WILLIAM C. MOORE Firm or Title: BEYLIK DRILLING, INC. - RME

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

Attachment

| Department of Health/ Safe Drinking Water, Wastewater, and Clean Water Branches
| Honolulu Board of Water Supply
| Yoshi Tanabe, Waialua Sugar Co. |
TO: STATE OF HAWAII - DLNR COMMISSION ON WATER RESOURCE MGMT.
P.O. BOX 621
HONOLULU, HI 96809

WE ARE SENDING YOU    X Attached    □ Under separate cover via ____________ the following items:

□ Shop drawings   □ Prints    □ Plans    □ Samples    □ Specifications
□ Copy of letter   □ Change order    □ ___________________________

<table>
<thead>
<tr>
<th>COPIES</th>
<th>DATE</th>
<th>NO.</th>
<th>DESCRIPTION</th>
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<tr>
<td>1</td>
<td></td>
<td></td>
<td>WELL CONSTRUCTION PERMIT</td>
</tr>
</tbody>
</table>

THESE ARE TRANSMITTED as checked below:

□ For approval    □ Approved as submitted    □ Resubmit _______ copies for approval
□ For your use    □ Approved as noted    □ Submit _______ copies for distribution
X As requested    □ Returned for corrections    □ Return _______ corrected prints
□ For review and comment    □ ___________________________

□ FOR BIDS DUE ___________________________    □ PRINTS RETURNED AFTER LOAN TO US

REMARKS: __________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________

COPY TO YOSHI TANABE WAIALUA SUGAR CO

SIGNED: ____________________________

WILLIAM C. MOORE

If enclosures are not as noted, kindly notify us at once.
**FACSIMILE TRANSMISSION**

**DATE**: May 17, 2002  
**# OF PAGES TO FOLLOW**: 0  
**TO**: Ewrs - Onie  
**ATTN**: Lenore Nakama  
**FROM**: Big Moore  
**FAX NO.**: 808-682-5866  
**REF**: WELL AB ENVELOPMENT PERMIT WELL NO. 013010

Lenore: This letter is to notify the Commission of our intent to begin drilling the referenced wells commencing May 20, 2002.

**Schedule of Events**:

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Gravel Fill PER Permit Application</td>
</tr>
<tr>
<td>2.</td>
<td>1:1 Grout Filling to Surface</td>
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</tbody>
</table>

Notes: Gravel 3/8 - 1/2" Basaltic Mortar  
Grout 1:1 - 2 American Mix 5511X RPG.

We intend to begin Grouting of one well Wednesday May 22 after Grouting and filling is done concurrently (i.e. Grouting and Graveling) work is completed.
To: George Ushimura

From: Hiram Young

Pls review and comment on Hawaii Dredging and Construction permits. If appropriate, I'll include in an addendum.

Hiram
May 9, 2002

Mr. Bill Moore
Beylick Drilling, Inc.
91-259-A Olai Street
Kapolei, HI 96707

Dear Mr. Moore:

Well Abandonment Permit
Waialua Sugar Pump 10 Battery (Well Nos. 3306-01 to 12)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s) which authorizes well abandonment/sealing activities. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 7:

Special Conditions

1. The sealing of the wells may be done on the basis of the salinity profiles, as shown in Table 2 of the application.

2. A separate Well Abandonment Report shall be filed for each well in the battery.

To validate your permit, please sign and have the landowner sign both permit originals and return one for our files.

IMPORTANT - The well owner is responsible for all conditions of the permit. This includes ensuring that the licensed contractor, submits a completed Well Abandonment 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.

If you have any questions, please call Lenore Nakama of the Commission staff at 587-0218.

Aloha,

GILBERT S. COLOMA-AGARAN
Chairperson

Enclosures

c: Yoshi Tanabe, Wailua Sugar Co.
WELL CONSTRUCTION PERMIT TO ABANDON/SEAL

Waialua Sugar Pump 10 Battery, Well Nos. 3306-01 to 12

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 abandonment/sealing of Waialua Sugar Pump 10 Battery (Well Nos. 3306-01 to 12) Along Poamoho Stream, Oahu, TMK 6-5-1:002, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, shall be notified in writing before any work covered by this permit commences.

2. The owner or operator of any well which has been determined by the department or voluntarily declared by the owner or operator to be abandoned as defined in §13-168-2, after written notification, shall be required, at owner's or operator's expense, to re-case, cement, plug back, cap, or otherwise repair the well or fill and seal the well with cement in a manner approved by the commission.

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

4. The Well Abandonment Report form (attached) shall be submitted to the Commission on Water Resource Management within sixty (60) days after completion of the work.

5. The permittee shall comply with all applicable laws, rules, and ordinances.

6. The sealing shall be completed within two (2) years.

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

Date of Approval: April 25, 2002
Expiration Date: None

GILBERT S. COLOMA-AGARAN, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day.

Permittee's Signature: ___________________________ Date: ______________________
Printed Name: ___________________________ Firm or Title: ___________________________

Contractor's Signature: ___________________________ 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
Honolulu Board of Water Supply
Yoshi Tanabe, Waialua Sugar Co.
<table>
<thead>
<tr>
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<th>D</th>
<th>SRC/CTR</th>
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<td>$(1) $25.00</td>
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<td>TOTAL</td>
<td>$25.00</td>
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REMARKS: LINE (1) Well No. 3306-01 to 12 (WCPA)
LINE (2)
LINE (3)
LINE (4)

---

PAY TO THE ORDER OF DEPT. OF LAND & NATURAL RESOURCES

TWENTY-FIVE AND 00/100 DOLLARS

Bank of Hawaii
KAPOLEI BRANCH
KAPOLEI, HI 96707

DETACH AND RETAIN THIS STATEMENT
THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW IF NOT CORRECT, PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED

<table>
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<tr>
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<th>DESCRIPTION</th>
<th>AMOUNT</th>
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<tr>
<td>4-23-02</td>
<td>APPLICATION FOR PERMIT (ABANDONMENT &amp; SEALING OF WAIALUA SUGAR PUMP 10 BATTERY)</td>
<td>1247M</td>
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<tr>
<td>Approved Well No.</td>
<td>Well Name</td>
<td>Applicant</td>
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</tr>
<tr>
<td>12/12/2001</td>
<td>Hawi 1</td>
<td>Hawaii DWS</td>
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Ms. Linnel T. Nishioka - Deputy Director
Commission on Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Ms. Nishioka:

Application to Seal the Waialua Sugar Company Pump 10 Well Battery,
State Nos. 3306-01 to 12 - Waialua, Oahu, Hawaii

Attached are an application to seal Wells 3306-01 to 12 in Waialua, Oahu and $25 filing fee. The proposed sealing of the wells would utilize a combination of gravel, sand seal, and cement similar to the recently completed sealing of the WP-4 wells in Waikele Gulch. Although Bulletin 4, Records of the Drilled Wells on the Island of Oahu, Hawaii indicates the "depth to top of aquifer" varies from 147 to 169 feet, CTD profiles show that the producing zones in the unweathered volcanics are about 100 feet deeper (these profiles are appended to the application). The proposed gravel fill is based on the CTD profiles.

Sincerely,

[Signature]

Tom Nance

Attachments

cc: Yoshi Tanabe - Waialua Sugar Co. [Fax only: 1 page]
    Bill Moore - Beylik Drilling, Inc. [Fax only: 1 page]
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
APPLICATION FOR PERMIT

4-12-02
01-74

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

1. (a) □ WELL OWNER: Waialua Sugar Co.
    Mailing Address: 1116 Whitmore Avenue
    Phone: 621-3220
    Fax: 621-7410
    Contact Person: Yoshi Tanabe
    Email: ________

(b) □ LAND OWNER: Waialua Sugar Co.
    Mailing Address: 1116 Whitmore Avenue
    Phone: 621-3220
    Fax: 621-7410
    Contact Person: Yoshi Tanabe
    Email: ________

(c) □ CONTRACTOR: Beylik Drilling, Inc.
    Mailing Address: 91-259-A Olai Street
    Phone: 682-5554
    Fax: 882-5866
    Contact Person: Bill Moore
    Email: ________

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

2. WELL NAME: Waialua Sugar Pump 10 Battery
    Island: Oahu
    Address: Along Poamooho Stream
    Tax Map Key: 6 5 1 002

    Attach: (a) portion of a 7.5-Minute Series USGS topographic map (scale 1:24,000) with well location labeled and include the name of the quad map
    (b) a property tax map, showing well location referenced to established property boundaries

3. PROPOSED WORK: [check all that apply]
   □ Construct New Well
   □ Install New Pump*
   □ Modify Existing Well*
   □ Modify Pump*
   □ Abandon/Seal

   *State Well No.: 3906-01 to 12
   (If unknown, please call Commission at 587-0225)

4. CONSTRUCTION:
   □ Drilled
   □ Dug
   □ Shaft
   □ Tunnel
   □ Other (explain):

5. PROPOSED PUMPING RATE: N/A gallons per minute

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

7. (a) PROPOSED AMOUNT OF WITHDRAWAL:
    □ N/A
    □ Flowmeter
    □ Open-pipe
    □ Well
    □ Orifice
    □ Other (explain):

    (b) METHOD OF FLOW MEASUREMENT:

OTHER IMPORTANT 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 OEQC at 586-4185.
   Special Management Area Permit (SMAP) To determine if a SMAP is necessary, call the Commission at 587-0225.

9. REMARKS, EXPLANATIONS:
   Refer to Attached Sheets

   (If more space is needed, please attach additional sheet)

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

Well Owner: Waialua Sugar Co.
Signature: __________________________
Date: 4/10/02
Latitude: _____________________________________________________________________________________________________________________________________________________________________________________________________________
Longitude: _____________________________________________________________________________________________________________________________________________________________________________________________________________
State Well No.: _____________________________________________________________________________________________________________________________________________________________________________________________________________

Landowner: Waialua Sugar Co.
Signature: __________________________
Date: 4/10/02

Contractor: Beylik Drilling, Inc.
Signature: __________________________
Date: 4/10/02

WCPA-P Form 821/01
**10. PROPOSED WELL SECTION** *(Please attach schematic if different from diagram provided below)*

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tr>
<td>Hole Diameter</td>
<td>_____ in.</td>
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<tr>
<td>Total Depth</td>
<td>_____ ft.</td>
</tr>
<tr>
<td>Rock or Gravel Packing:</td>
<td>_____ ft.</td>
</tr>
<tr>
<td>Annular space between hole</td>
<td>_____ in.</td>
</tr>
<tr>
<td>and casing (min.3):</td>
<td></td>
</tr>
<tr>
<td>Est. Water Level Elevation</td>
<td>_____ ft.</td>
</tr>
<tr>
<td>Minimum of 2” radius &amp; 4”</td>
<td></td>
</tr>
<tr>
<td>Thick Concrete Pad (to</td>
<td></td>
</tr>
<tr>
<td>contain benchmark</td>
<td></td>
</tr>
<tr>
<td>surveyed to nearest 0.01 ft.)</td>
<td></td>
</tr>
<tr>
<td>Ground Elevation:</td>
<td>_____ ft.</td>
</tr>
<tr>
<td>Bottom Elevation:</td>
<td>_____ ft.</td>
</tr>
</tbody>
</table>

- **Total Length:** _____ ft.
- **Nominal Diameter:** _____ in.
- **Wall Thickness:** _____ in.
- **Bottom Elevation:** _____ ft. m.s.l.

**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  
    - Type E  
    - Type S  
    - Grade B  
    - Other
  - 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 D2296  
- Centrífugally Cast Resin Pipe conforming to ASTM D2297  
- Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517  
- Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA 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  
    - Type E  
    - Type S  
    - Grade B  
    - Other
  - ABS Plastic conforming to ASTM F480 and ASTM D1527: (check one):  
    - Schedule 40  
    - Schedule 80  
    - Schedule 120

**Thermoset Plastic:** (check one)
- Filament Wound Resin Pipe conforming to ASTM D2296  
- Centrífugally Cast Resin Pipe conforming to ASTM D2297  
- Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517  
- Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950  
- PTFE Fluorocarbon Tubing conforming to ASTM D3296  
- FEP Fluorocarbon Tubing conforming to ASTM D3296

---

*The approximate elevation must be referenced to mean sea level (m.s.l.) at the time of application filing. Final elevations of wet 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 Basin Wells - bottom elevation of well should not be deeper than 1/4 of aquifer thickness or, Bottom Elevation of Well Limit = (Water Elevation - msō / 4) ft.

Example: Estimated = 2 ft. Water Level Elev. → Bottom Elevation of Well Limit = (2 - 2 msō / 4) ft. = 1.5 ft.
Refer to the Attached Tables and Descriptions

10. PROPOSED WELL SECTION  (Please attach schematic if different from diagram provided below)

Hawaii Well Construction and Pump Installation Standards

**Solid Casing Material:**
- Carbon Steel: compliant with (check one or more): ANSI/AWWA C200, API Spec. 5L, ASTM A53, ASTM A139
- Stainless Steel: compliant with (check one or more): ASTM A240, Type E, Type S, Grade B, Other
- ABS Plastic conforming to ASTM F490 and ASTM D1527: (check one) Schedule 40, Schedule 80, Schedule 120
- 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, ASTM A139
- Stainless Steel: compliant with (check one or more): ASTM A240, Type E, Type S, Grade B, Other
- 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

Total Depth ______ ft.

Estimated Water Level __________________ ft.

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

**Ground Elevation:** ft.

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

Bottom Elevation of Well Limit = (Water Elevation - 0.25 * Aquifer Thickness)

Example: Estimated + 2 ft. Water Level Elev. --- Bottom Elevation of Well Limit = (2 - 0.25) = -1.5 ft.

Solid Casing:
- (2 x Ground Elev. - Water Level Elev.)
- Nominal Diameter: _______ in.
- Wall Thickness: _______ in.
- Bottom Elevation: _______ ft.

Open Casing:
- Perforated or Screen
- Total Length: _______ ft.
- Nominal Diameter: _______ in.
- Wall Thickness: _______ in.
- Bottom Elevation: _______ 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.

Minimum of 2' Radius & 4" Thick Concrete Pad (to contain benchmark surveyed to nearest 0.01 ft.)
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
APPLICATION FOR PERMIT

4-12-02
01-74

Applicant Information: Commission may not accept Incomplete applications. For assistance, call the Regulation Branch at
on Water Resource Management.

APPLICATION INFORMATION:

WELL & PUMP

1. (a) 3. (b) 4. (c)

PROPOSED CONSTRUCTION:

PROPOSED USE:

OTHER IMPORTANT INFORMATION:

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 OEQC at 586-4165

Special Management Area Permit (SMAP) To determine if a SMAP is necessary: on Oahu, call 527-5374; on Hawaii, call 961-8286; for Maui County, call 270-7235; on Kauai, call 241-6677.

9. REMARKS, EXPLANATIONS:

Other Important Information:

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

If required, if date approved

If required, if date approved

If required, if date approved

NOTE: Signing below indicates the signatories understand and swear that the information provided on this application is accurate and true to the best of their knowledge. Further, the signatories understand that approval of this application attaches the following conditions:

Well Owner

Landowner

Contractor

For official use only

Latitude

Aquifer System No.

Longitude

State Well No.

WCP/PA Form 8/21/01
Proposed Sealing of the Waialua Sugar Pump 10 Wells
(State Nos. 3306-01 to 12)
Waialua, Oahu, Hawaii

After Beylik Drilling, Inc. had cleared access to each of the 12 wells and milled 6-inch holes through the flanges at the top of the well casings, measurements of the well depths and CTD profiles of each well were made (Table 1 and the attached graphs). The sharp salinity breaks evident in almost all of the CTD profiles occur at depths significantly deeper than the "Depth to top of aquifer" designations in "Records of Drilled Wells on the Island of Oahu, Hawaii," Bulletin 4 of the Division of Hydrography (Old Well Nos. 323 A to L, also attached).

Sealing of the wells would be based on the CTD profiles. As compiled in Table 2, the lower 42 to 70 feet would be filled with gravel, followed by a 5-foot sand seal and then cement grouting to the top of the casing flanges.
### Table 1

Measured Well Depths and Approximate Elevations

<table>
<thead>
<tr>
<th>Well No.</th>
<th>Approximate Ground Elevation (Feet MSL)</th>
<th>Total Depths (Feet)</th>
<th>Elevation at Bottom (Feet MSL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Below Ground</td>
<td>Below Top Flange of Tee</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>55.6</td>
<td>366.8</td>
<td>312.7</td>
</tr>
<tr>
<td>2</td>
<td>55.5</td>
<td>374.6</td>
<td>320.6</td>
</tr>
<tr>
<td>3</td>
<td>56.2</td>
<td>373.6</td>
<td>318.9</td>
</tr>
<tr>
<td>4</td>
<td>57.9</td>
<td>398.6</td>
<td>342.2</td>
</tr>
<tr>
<td>5</td>
<td>55.9</td>
<td>369.6</td>
<td>315.2</td>
</tr>
<tr>
<td>6</td>
<td>50.3</td>
<td>369.3</td>
<td>320.5</td>
</tr>
<tr>
<td>7</td>
<td>48.8</td>
<td>353.4</td>
<td>306.1</td>
</tr>
<tr>
<td>8</td>
<td>48.1</td>
<td>362.3</td>
<td>315.8</td>
</tr>
<tr>
<td>9</td>
<td>47.1</td>
<td>362.2</td>
<td>316.6</td>
</tr>
<tr>
<td>10</td>
<td>49.4</td>
<td>357.1</td>
<td>309.2</td>
</tr>
<tr>
<td>11</td>
<td>50.2</td>
<td>354.4</td>
<td>305.7</td>
</tr>
<tr>
<td>12</td>
<td>53.9</td>
<td>368.2</td>
<td>315.8</td>
</tr>
</tbody>
</table>

**Note:** All elevations based on the flange on the top of all tees being at 1.50 feet (MSL).
Table 2
Proposed Sealing of the Wells Based on the Salinity Profiles

<table>
<thead>
<tr>
<th>Well No.</th>
<th>Gravel Fill</th>
<th></th>
<th>Sand Seal</th>
<th></th>
<th>Cement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Depths (Feet)</td>
<td>Linear Feet</td>
<td>Depths (Feet)</td>
<td>Linear Feet</td>
<td>Depths (Feet)</td>
</tr>
<tr>
<td>1</td>
<td>Bottom to 307</td>
<td>60</td>
<td>307 to 302</td>
<td>5</td>
<td>302 to Casing Tee</td>
</tr>
<tr>
<td>2</td>
<td>Bottom to 333</td>
<td>42</td>
<td>333 to 328</td>
<td>5</td>
<td>328 to Casing Tee</td>
</tr>
<tr>
<td>3</td>
<td>Bottom to 321</td>
<td>53</td>
<td>321 to 316</td>
<td>5</td>
<td>316 to Casing Tee</td>
</tr>
<tr>
<td>4</td>
<td>Bottom to 337</td>
<td>62</td>
<td>337 to 332</td>
<td>5</td>
<td>332 to Casing Tee</td>
</tr>
<tr>
<td>5</td>
<td>Bottom to 308</td>
<td>62</td>
<td>308 to 303</td>
<td>5</td>
<td>303 to Casing Tee</td>
</tr>
<tr>
<td>6</td>
<td>Bottom to 305</td>
<td>64</td>
<td>305 to 300</td>
<td>5</td>
<td>300 to Casing Tee</td>
</tr>
<tr>
<td>7</td>
<td>Bottom to 303</td>
<td>50</td>
<td>303 to 298</td>
<td>5</td>
<td>298 to Casing Tee</td>
</tr>
<tr>
<td>8</td>
<td>Bottom to 318</td>
<td>44</td>
<td>318 to 313</td>
<td>5</td>
<td>313 to Casing Tee</td>
</tr>
<tr>
<td>9</td>
<td>Bottom to 292</td>
<td>70</td>
<td>292 to 287</td>
<td>5</td>
<td>287 to Casing Tee</td>
</tr>
<tr>
<td>10</td>
<td>Bottom to 309</td>
<td>48</td>
<td>309 to 304</td>
<td>5</td>
<td>304 to Casing Tee</td>
</tr>
<tr>
<td>11</td>
<td>Bottom to 304</td>
<td>50</td>
<td>304 to 299</td>
<td>5</td>
<td>299 to Casing Tee</td>
</tr>
<tr>
<td>12</td>
<td>Bottom to 304</td>
<td>64</td>
<td>304 to 299</td>
<td>5</td>
<td>299 to Casing Tee</td>
</tr>
</tbody>
</table>

Note: All depths are from the present ground surface and are rounded to the nearest foot.
Territory of Hawaii

JOSEPH B. POINDEXTER, Governor
Louis M. Whitehouse, Commissioner of Public Lands

DIVISION OF HYDROGRAPHY
MAX H. CARSON, Chief Hydrographer

Bulletin 4

RECORDS OF THE DRILLED WELLS ON THE ISLAND OF OAHU, HAWAII

By HAROLD T. STEARNS
Geologist in Charge
Hawaiian Ground-Water Investigations
U. S. Geological Survey

and

KNUTE N. VAkSVIK
Artesian Well Engineer, U. S. Geological Survey

Prepared in cooperation with the Geological Survey,
United States Department of Interior

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AUGUST 1938

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Logs

Observations—Well 322 (Continued)

Observations

Bench mark, top of priming plug on any pump; altitude, 4.61 ft.