June 4, 2004

To: Chris Yuen, Planning Director, Island of Hawaii

From: Glenn Bauer, State Geologist

Subject: Kaʻu Wells Near South Pt. And Belt Highway Intersection

I am faxing back your map with the location of three wells within the 2-mile radius of the “X”.

Well No. 0139-01 (Kaʻu Exploratory Well)

- Owned by DLNR and drilled for DHHL in 1991 (not in use).
- Ground elevation = 1,259 ft., mean sea level (msl)
- Tested for 72 hours at 180 gallons per minute (gpm).
- Drawdown was 23± ft.
- Chlorides ranged between 68 – 155 mg/L over the length of the test.
- Static water level = 7.12 ft., msl

Well No. 0240-01 (Kaʻu Citrus Well)

- Owned by Morton Bassan, Jr.
- Ground elevation = 1,690± ft., msl
- Pump test at 82 gpm. (He is on notice to submit Well Completion Reports 1 (well construction) and 2 (pump installation).)
- Drawdown = 0.5 ft.
- Chloride = 6 mg/L
- Static water level = 239.9 ft., msl

Well No. 0339-01 (South Point Well)

- Owned by USGS (Drilled on DWS tank site)
- Ground elevation = 1,944± ft., msl
- Observation well, never pumped
- Chloride data unknown but is probably similar to 0240-01 chloride.
- Static water level = 436.1 ft., msl

Hope this helps you. Call me at 587-0263 if you need additional information.
To: Mr. Chris Yuen  
Company: Hawaii County Dept. of Planning  
Fax Number: 961-8742  
Phone Number: 961-8288  

From: Glenn R. Bauer  
Date: June 4, 2004  
Pages Including Header: 3  
Subject: Ka'u Well Information

Notes/Comments:

Chris,

Please give me a call if you require more information.

Have a good weekend.

Aloha,
Glenn
Mr. Morton Bassan, Jr.
P.O. Box 21
Naalehu, HI 96772

Dear Mr. Bassan:

Kau Citrus Wells 1 & 2 (Well Nos. 0240-01 and 0240-02)

This is in reference to our letter to you dated March 17, 1999. We remind you that the following information is required to fulfill the requirements of your Well Construction Permit for the Kau Citrus Well #1, as described in your Standard Permit Condition 6:

2. As-built section of well.
3. Plot plan and map showing exact location of the well.
4. Please conduct a new pump test in accordance with the Hawaii Well Construction and Pump Installation Standards (previously transmitted).

Please respond to the above item(s) within sixty (60) days of this letter's date. Failure to do so may result in fines of up to $1000 per day and the revocation of your permits.

If you have any questions, please call Mr. Ryan Imata of the Commission staff at 587-0255 or toll-free at 974-4000, extension 70255.

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

RI:ss
Mr. Morton Bassan, Jr.
P.O. Box 21
Naalehu, HI 96772

Dear Mr. Bassan:

Kau Citrus Wells 1 & 2 (Well Nos. 0240-01 and 0240-02)

We acknowledge receipt of your transmittal dated February 23, 1999. However, the information does not satisfy the requirements of the conditions of your well construction permit. For the information to be complete, please submit the following information as described in your Standard Permit Condition 6:

2. As-built section of well.
3. Plot plan and map showing exact location of the well.
4. Please conduct a new pump test in accordance with the Hawaii Well Construction and Pump Installation Standards (attached for your use).

We cannot issue your pump installation permit until this information is provided.

Furthermore, you are granted a two year extension from the previously extended completion date for the completion of construction of the Kau Citrus Well 2 (0240-02). Your new date of completion is February 7, 2001. Please note that any extension beyond this will require reapplication for a well construction permit and possible Commission action.

If you have any questions, please call Mr. Ryan Imata of the Commission staff at 587-0255 or toll-free at 974-4000 (Hawaii), extension 70255.

Sincerely,

EDWIN T. SAKODA
Acting Deputy Director

RI:ss
Enclosures
WCR 1 Check for Well No. 0240-01 (survey to regulation memo)

1. **Pump Tests Check**
   - Glenn Bauer (initial)
   - **Yes** □ □
   - **No** □ □
   - If no, describe deficiency

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

   **Aquifer Pump Test:**
   - acceptable □ □ □ □
   - followed WCPI Stds □ □ □ □
   - T & S analysis attached □ □ □ □

   **Well Interference:**
   - estimated Steady-State
   - drawdown at 1-mile radius is ________ ft.
   - analysis attached □ □ □ □

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

2. **Construction Check**
   - Mitch Ohye (initial)
   - **Yes** □ □
   - **No** □ □
   - If no, describe deficiency

   - data complete □ □ □ □
   - followed WCPI Stds □ □ □ □
   - wellphys.dbf updated □ □ □ □
   - welaplic.dbf updated □ □
State of Hawaii
Dept of Land & Natural Resources
Commission on Water Resource Management
PO Box 621
Honolulu, Hi 96809

Ref: Ka’u Citrus Wells (Well Nos. 0240-01 & 02)
TMK 9-3-4:27, Kamaoa, Ka’u, Hawaii

Dear Sir or Madam:

Attached are the following;

1. Well Site Certification by a licensed surveyor,
2. Pump test data on a three page spreadsheet,
3. Pictorial draw down chart based on original sauna tube pressure of 30.5 psi,
4. Pictorial draw down chart based on sauna tube pressure of 28.5 psi which is what the static pressure appeared to be after well was developed.

I thought it interesting after the well was developed the static sauna tube pressure changed from 30.5 to 28.5 psi. After that there was 1.08 inches, or less, draw down while pumping 118,080 gallons per day.

Please issue pump installation permit for Ka’u Citrus Well No. 0240-01.

Also please issue a 2 year extension for me to complete Ka’u Citrus Well No. 0240-02 as I need to save up some more money.

Sincerely,

Morton Bassan, Jr.
WELL SITE CERTIFICATION
Well Site at Kamaoa-Ka'u, Hawaii
TMK: (3) 9-3-4:27

I hereby CERTIFY that the following elevation was obtained by survey levels from a Government Brass Survey Monument and is referenced to mean sea level (msl). The elevation survey was done on September 24, 1997 and is recorded in Job File 2133-97.

The Bench Mark Elevation is 1690.37 feet (msl). The Bench Mark is a P. K. Nail set in the Northwest corner of the concrete well pad.

Kailua-Kona, Hawaii
March 26, 1998
Prepared for:
Morton Bassan, Jr.
P. O. Box 21, Naalehu, HI 96772
Ka'u Well1 drawdown at 28.5 psi as baseline sauna tube pressure

Days measurements taken

Drawdown in feet

-0.50
0.00
0.50
1.00
1.50
2.00
2.50
Ka‘u Well1 drawdown at 30.5 psi as baseline sauna tube pressure

drawdown in feet

days measurements taken
Ka'u Gold Well #1 drawdown - First Sauna tube reading 2/26/98 11:15 am prior to pumping was 30.5 psi.

Please note: 1. On April 8, 1998 after a 19 hour pumping shut down the Sauna tube reading was 28.7 psi.
   2. It seems that the sauna tube psi stabilized at 28.5 after well was developed.

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TO ______________________________

DATE ___________________ TIME ______

WHILE YOU WERE OUT

M ______________________________
of ______________________________

Phone ______________________________

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RETURNED YOUR CALL

Message ______________________________

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A memo from Ed dated 2/26/99 regarding the commission on water resource management.

Notes: Ensure you have the standards and tell him to do the test again.
Mr. Morton Bassan, Jr.
P.O. Box 21
Naalehu, Hawaii 96722

Dear Mr. Bassan:

Well Construction Permit for
Well Nos. 0240-01 & 02

Thank you for your letter dated October 19, 1997 requesting an extension of your well construction permit. This letter grants you an extension of one year from the date of your permit approval for completion of the well construction phase. Please note that you are required to begin construction within six months of the date of this letter. All other conditions of your permit remain.

If you have any questions, please contact Ryan Imata at 587-0255 or toll-free at 974-4000 (Hawaii), extension 70255.

Sincerely,

RAE M. LOUI
Deputy Director
Dear Sir/Madam,

I need to ask for a one year extension until March 9, 1999 to complete the two wells. Attached is my down hole water quality report.

The reasons for the extension request are as follows:

1. I had to learn how to setup & use the well drilling machinery, &
2. When I realized I needed additional or different tools lead & shipping time from the mainland via boat really added a lot of time to the overall project, &
3. I didn’t realize casing is much less expensive if ordered from the factory which increases the lead time 2 to 3 months, &
4. I didn’t realize an engineered pump takes from 6 to 12 weeks for delivery, &
5. My first hole deviated & had to be concreted, &
6. I started my 2nd hole in May 1997 & I was just able to get the water quality results, &
7. Where the bit drilled one to three inches I may have to ream out the hole to lower the casing without damaging the more sensitive screening, &
8. Although the elevation survey was ordered on, or before, July 3 it wasn’t completed until 9/25/97 & I still don’t have the written documents, &
9. There are/were lesser problems that made the project for 2 wells take longer than expected but they are small compared to learning what tools & equipment are needed & how to use the tools & equipment.

At present my surface elevation is 1,690.55 feet. My hole is 1,650.5 feet. The standing water is 199.387 feet. Please note the water quality report is dated 10/13/97. Now I am ordering the casing, screening & pumping system materials. I will conduct a pump test as outlined in my permit.

I hope you will give my request your full consideration & grant me the extension.

Cordially,

Morton Bassan, Jr.
MEMORANDUM

TO: Morton Bassan
FROM: Tom Nance
SUBJECT: Quality Through the Well’s Water Column

Attached are results of the data collected from your well on October 10th. These are presented in graphic form and as a printout of the data file. The water is cool (generally 65.5 to 65.6°F) and exceptionally fresh. Minor salinity variations in the uppermost 65 feet suggest more water movement there, probably reflecting more yield in this portion of the water column. Specifications of the items we discussed will follow.

Attachments
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 621
HONOLULU, HAWAII 96809

WELL CONSTRUCTION PERMIT
for
Kau Citrus Wells
Well Nos. 0240-01 & 02

To: Morton Bassan
P.O. Box 21
Naalehu, Hawaii 96772

In accordance with Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test Kau Citrus Wells (Well Nos. 0240-01 & 02) at Kamaoa, Kau, Hawaii, TMK 9-3-4:27, is approved, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. The Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, before any work by this permit commences.

2. The well construction permit shall be for construction and testing of the well only. A minimum one-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure. The permittee shall submit to the Commission the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Commission.

3. 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.

4. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department's Historic Preservation Division (587-0045) immediately.

5. 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.

6. The following shall be submitted to the Commission within thirty (30) days after completion of work:

a. Well completion report.
b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
c. As-built sectional drawing of the well.
d. Plot plan and map showing the exact location of the well.
e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other water quality data.
7. The permittee shall comply with all applicable laws, rules, and ordinances.

8. The well construction permit application and staff submittal approved by the Commission at its February 7, 1996 meeting are incorporated into the permit by reference.

9. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

SPECIAL CONDITIONS

1. The well should not be used for drinking water unless it is properly tested and treated.

2. If potable water is used to supply both domestic and irrigation purposes in a single system, the permittee 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.

3. The Chairperson shall approve and issue pump installation permits upon acceptance of aquifer pumping test results required in Condition 6e.

Michael D. Wilson, Chairperson
Commission on Water Resource Management
Date of Approval: February 7, 1996

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.

Applicant's Signature: Martin Bassan
Date: 3/9/96

Printed Name: Martin Bassan

Firm or Title: Owner

Please sign both copies and return one copy of this permit to the Commission and retain a copy for your record.

Attach.
cc: USGS
Department of Health
Safe Drinking Water Branch
Wastewater Branch
Hawaii Department of Water Supply
Mr. Morton Bassan  
P.O. Box 21  
Naalehu, Hawaii 96772

Dear Mr. Bassan:

Well Construction Permit  
Kau Citrus Wells (Well Nos. 0240-01 & 02)

Enclosed are two (2) copies of your permit for the captioned wells. Please sign them and return one for our files.

Also enclosed is the aquifer pump test procedure. Please note that a pump installation permit will be issued upon acceptance of the aquifer pumping test results.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214.

Aloha,

Michael D. Wilson  
Chairperson

Enclosures
To: Morton Bassan  
P.O. Box 21  
Naalehu, Hawaii 96772

In accordance with Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test Kau Citrus Wells (Well Nos. 0240-01 & 02) at Kamaoa, Kau, Hawaii, TMK 9-3-4:27, is approved, subject to the following conditions:

**STANDARD PERMIT CONDITIONS**

1. The Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, before any work by this permit commences.

2. The well construction permit shall be for construction and testing of the well only. A minimum one-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure. The permittee shall submit to the Commission the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Commission.

3. 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.

4. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department's Historic Preservation Division (587-0045) immediately.

5. 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.

6. The following shall be submitted to the Commission within thirty (30) days after completion of work:
   a. Well completion report.
   b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawing of the well.
   d. Plot plan and map showing the exact location of the well.
   e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other water quality data.
WELL CONSTRUCTION PERMIT
Well Nos. 0240-01 & 02

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

8. The well construction permit application and staff submittal approved by the Commission at its February 7, 1996 meeting are incorporated into the permit by reference.

9. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

SPECIAL CONDITIONS

1. The well should not be used for drinking water unless it is properly tested and treated.

2. If potable water is used to supply both domestic and irrigation purposes in a single system, the permittee 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.

3. The Chairperson shall approve and issue pump installation permits upon acceptance of aquifer pumping test results required in Condition 6e.

Michael D. Wilson, Chairperson
Commission on Water Resource Management
Date of Approval: February 7, 1996

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.

Applicant's Signature: __________________________ Date: ________________

Printed Name: __________________________

Firm or Title: __________________________

Please sign both copies and return one copy of this permit to the Commission and retain a copy for your record.

Attach.
cc: USGS
Department of Health
Safe Drinking Water Branch
Wastewater Branch
Hawaii Department of Water Supply
ROUTE SLIP

Well Construction (X) Pump Installation ( ) WUP Req'd ( )

Well Name  Kain Citrus  0240-01  Island  Hawaii
Applicant  Morton Bassan  Landowner  same
Consultant  (self)  TMK  9-3-4:27

Mapped 24 Nov 95  Logcomp  19 Dec 95  Logbk  19 Dec 95
Acceptd  31 Oct 95  +90 days  30 Jan 96  Bulletin  Dec.
Ch 343 pau  NA  Tent CWRM Action  7 Feb 96
Fee Depos  

Acknowledgment  
DoH/Drink Water  
Wastewater  
Submittal mailed  Faxed..Appl:  
CWRM  Appr  Deny  Consult:  Permit/Notice to Appl
              
            3rdP: 
Cond.s routed to Survey  

Comments Recd  
Sent
PRESENTATION OF SUBMITTAL: Mr. Charley Ice

AMENDMENT: Staff requested to amend the Issues/Analysis on page two of the submittal as follows:

ISSUES/ANALYSIS:

Agency Review: The application was published in the Commission’s Water Resource Bulletin in December 1995; the longer list of agencies who had once received review notices were advised by letter that copies of the applications would no longer be automatically routed to them, as the Bulletin can replace this action. Review letters were sent to the Department of Health’s Safe Drinking Water and Wastewater Branches. The Safe Drinking Water Branch recommends that potable water wells such as this one not requiring Department of Health approval be tested for bacteriological and chemical presence and be routinely monitored thereafter.

STAFF RECOMMENDATION:

Staff requested to amend the submittal as follows:

A. That the Commission approve the issuance of a well construction/pump installation permits for Kau Citrus Wells, subject to the standard permit conditions in Exhibit 3 and the following special condition:

1. The well should not be used for drinking water unless it is properly tested and treated.

2. If potable water is used to supply both domestic and irrigation purposes in a single system, the permittee 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.

B. That the Commission authorize the Chairperson to approve and issue pump installation permits upon acceptance of aquifer pumping test results required in Condition 6e.

MOTION: (RICHARDS/COX)

To approve staff’s recommendation as amended.

UNANIMOUSLY APPROVED AS AMENDED.
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

February 7, 1996
Honolulu, Oahu

Morton Bassan
Kau Citrus Wells (Well Nos. 0240-01 & 02)
Well Construction: two 12-inch diameter, 1750-foot deep wells
Pump Installation: 200-gpm Pumps
for domestic and irrigation use

APPLICANT:
Morton Bassan
P.O. Box 21
Naalehu, Hawaii 96772

DESCRIPTION:
Location: (see Exhibit 1)
Kamaoa, Kau, Hawaii
Tax Map Key 9-3-4:27
Ka Lae Aquifer System of SE Mauna Loa Sector.
Estimated Sustainable Yield: 31 mgd.
Existing Use: 0 mgd

LANOWNER:
Same

Dimensions: (see Exhibit 2)
ground elevation 1750 ft.
hole diameter 12 in.
Total depth 1760 ft.
solid casing depth 1400 ft.
screen casing depth 350 ft.
open hole 10 ft.

Anticipated pump capacity: 200 gpm each

Project Area

Island of Hawaii

Item 3
BACKGROUND:

The application for this well was accepted as complete on October 31, 1995.

ISSUES/ANALYSIS:

Agency Review: The application was published in the Commission's Water Resource Bulletin in December 1995; the longer list of agencies who had once received review notices were advised by letter that copies of the applications would no longer be automatically routed to them, as the Bulletin can replace this action. Review letters were sent to the Department of Health's Safe Drinking Water and Wastewater Branches. The Safe Drinking Water Branch recommends that potable water wells such as this one not requiring Department of Health approval be tested for bacteriological and chemical presence and be routinely monitored thereafter.

Staff review: The proposed well would tap fresh basal ground water. Proposed use is approximately 360,000 gallons per day. There are no other wells within one mile of this well. No adverse impacts are expected.

RECOMMENDATION:

A. That the Commission approve the issuance of a well construction/pump installation permits for Kau Citrus Wells, subject to the standard permit conditions in Exhibit 3 and the following special condition:

1. The well should not be used for drinking water unless it is properly tested and treated.

B. That the Commission authorize the Chairperson to approve and issue pump installation permits upon acceptance of aquifer pumping test results required in Condition 6e.

Respectfully submitted,

Amendments for 7 Feb 96

Item 3 (Ka'u Citrus Well)

p.2 (Issues/Analysis) Following the Department of Health’s comment on this well, the applicant requested to amend the application by including domestic use as well as irrigation. DoH’s comment on another well is equally appropriate to this one: "Any mixing of potable and non-potable water in a single system must prevent potential contamination of potable water by physically separating any connection with an air gap or an approved backflow preventer, and by clearly labeling non-potable spigots."

p.2 (Recommendation) Add A.2. "If potable water is used to supply both domestic and irrigation purposes in a single system, the permittee 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."
PROPOSED SECTION OF WELL

Elevation at top of casing 1752 ft., msl.

Ground Elev. 1750 ft., msl

Cement Grout 600 ft.

Hole Dia. 121/4

Total Depth 1760 ft.

Rock Packing 400 ft.

Solid Casing:

Material PVC

Length 1400 ft.

Diameter 10" in.

Wall thickness 1/4" in.

Casing: Perforated Screen

Material PVC steel

Length 350 ft.

Diameter 10" in.

Wall thickness 1/4" in.

Openings 20 sq. in./L.F.

Open Hole:

Length 10'

Diameter 8" in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
STANDARD WELL CONSTRUCTION PERMIT CONDITIONS

1. The Commission shall be notified two weeks before work commences, to facilitate monitoring.

2. The well construction permit shall be for construction and testing of the well only. A minimum one-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure (Exhibit 4). The permittee shall submit to the Commission the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Commission.

3. 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.

4. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department’s Historic Preservation Division (587-0045) immediately.

5. 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.

6. The following shall be submitted to the Commission within thirty (30) days after completion of work:
   a. Well completion report.
   b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawing of the well.
   d. Plot plan and map showing the exact location of the well.
   e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other water quality data.

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

8. The well construction permit application and staff submittal approved by the Commission at its February 7, 1996 meeting are incorporated into the permit by reference.

9. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

EXHIBIT 3
AQUIFER (PUMP) TEST PROCEDURES

The pump test procedure for new wells shall consist of a step-drawdown test followed by a long-term continuous aquifer test. Testing the well and aquifer in the prescribed manner should result in the hydrologic information needed to determine: 1) the well's performance with regard to yield and water quality (chloride concentration), and 2) the nearby hydraulic properties of the aquifer.

General Recording Requirements

The records required for analysis and the tolerance in measurement acceptable for the step-drawdown and long-term continuous aquifer test are as follows:

1. Discharge from the well shall not fluctuate beyond ± 10 percent.
2. Depth to water measurements in the pumped well shall be accurate to 0.01 feet.
3. Time shall be accurate within ± 1 percent.
4. Water discharged from the well during the step-drawdown and long-term test shall be carried away from the well to a distance sufficient to preclude circulation of the discharge water downward to the ground-water table.
5. Recording of data should be on a form similar to Table 1. All information shown in Table 1 shall be provided. In addition, data shall be plotted on Graph 1 and provided.

Step-Drawdown Test

The purpose of the step-drawdown test is to establish the efficiency of the well and to provide preliminary information on the yield of the well, both from a quantity and quality standpoint.

1. Measurement of water level in the pumped well shall be made every 12 hours for a period of no less than two days prior to the initiation of the step-drawdown test in order to obtain the pretest trend in water levels.
2. The step-drawdown test will consist of continuously pumping the well for four hours at four different rates.
   a. The change from one pumping rate to the next must be sufficient to induce an observable change in water level in the well from the previous pumpage rate.
   b. If desired, the four different rates should represent the full range of pump capacity (if the yield can sustain this), but this is not necessary.
3. Each pumping rate should be continued for one hour, after which the new rate should be instituted as rapidly as possible.

4. Pumping should begin at the lowest rate and conclude with the highest rate.

5. Pumping should be continuous through the entire step-drawdown test.

6. Measurement of chloride concentration and temperature of the discharge water shall be measured at least five times:
   a. at the end of each pumping rate during the step-drawdown test, and
   b. at the very beginning of the test.

7. A sufficient number of water level measurements shall be made in the pumped well following the termination of the step-drawdown test to establish that the water level fully recovers from each test to pretest levels.

**Long-Term Continuous Test**

The purpose of the long-term continuous test is to determine the hydraulic properties of the aquifer to explore for and identify nearby aquifer boundaries such as streams or dikes, and to observe the trend in chloride concentration of the discharge water.

1. The long-term test should not commence until the water level in the pumped well has fully recovered from the step-drawdown test. Generally, the time required for this recovery will be slightly greater than four hours. The water level in the pumped well should be measured immediately before initiation of the long-term test.

2. The pump rate for the long-term test should be sufficient to create an observable drawdown.

3. The test should be run 24 hours per day for at least seven days. If during the test, the water level remains the same for a period of 24 hours, the test can be terminated.

4. Measurement of chloride concentration and temperature of the discharge water during the long-term test shall be made at the beginning of the test and every six hours thereafter.

5. Depth to water in all wells shall be measured with sufficient frequency that each logarithmic cycle in time on the data plots (Graph 1) contains at least 10 data points spread through the cycle. Thus, depth to water should be made at t=0 (immediately prior to start of the test), and as close as possible at t=1, 1.5, 2, 2.5, 3, 4, 5, 6, 7, and 8 minutes for the first ten minutes and at all succeeding decimal multiples of these numbers to the end of the test (t=10, 15, 20, 25, 30, 40, 50, 60, 70, and 80 minutes for the log cycle 10 to 100 minutes, etc.)

6. A sufficient number of water level measurements shall be made in the pumped well following termination of the long-term continuous test to establish that the water level fully recovers from each test to pretest levels.
# LONG-TERM AQUIFER TEST DATA

- **Pumped Well No.**
- **Observation well no.**
- **Pumped Well Name**
- **Distance between Obs & Pumped Well**
- **Target Q**
- **Reference pt. for depth to water**
- **Static Water Level @ start of test**

**Water level measurements by:**
- steel tape
- pressure transducer
- airline

**START TEST**
- **Date:**
- **Hour of day:**

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Use same ending drawdown figure as start for recovery

Max possible duration, water level or quality did not stabilize for any 24 period

Begin recovery data next page
Flow meter reading at end of pumped period:

______________ gals

Data in this table is for:

- Pumped Well
- Observation Well

Remarks
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<th>EC (μmhos)</th>
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**END TEST** Date: __________ Hour of day: __________

**ADDITIONAL REMARKS:**

Person in charge of pump test (print): ________________________________

Signature: ________________________________

The signature above indicates that the data reported on this form is accurate and true to the best of the person's knowledge who operated this aquifer test.

_CWRM LTAT Form 1/8/98_
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<th>Owner/User</th>
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<th>Chloride mg/l</th>
<th>Pump Cap gpm</th>
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Well Count: 4
TO: Honorable Lawrence Miike, Director  
Department of Health  
Attn: Mr. Dennis Tulang, Wastewater Branch  
Mr. William Wong, Safe Drinking Water Branch

FROM: Michael D. Wilson, Chairperson  
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application for  
Kau Citrus Well (Well No. 0240-01)

Transmitted for your review and comment is a copy of a Well Construction/Pump Installation Permit Application for Kau Citrus Well (Well No. 0240-01).

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 December 29, 1995.

Please find a map, attached, to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Charley Ice of the Commission staff at 587-0251.

Attachment(s)

RESPONSE: ☑ We have no comments  
( ) Comments attached

Contact Person: Bill Wong  
Phone: 587-0253

Signed: Bill Wong  
Date: 12/15/95
Mr. Morton Bassan  
P.O. Box 21  
Naalehu, Hawaii 96772  

Dear Mr. Bassan:  

Well Construction and Pump Installation Permit Application for  
Kau Citrus Well (Well No. 0240-01)  

We accepted your Well Construction and Pump Installation Permit Application on October 31, 1995, and hereby acknowledge that it is complete. You can expect your application to be processed for action within ninety (90) days from that receipt date.  

If you have any questions about your application, please contact Charley Ice of the Commission staff at 587-0251.

Sincerely,

RAE M. LOUI  
Deputy Director
TO: Honorable Lawrence Milke, Director
      Department of Health
      Attn: Mr. Dennis Tulang, Wastewater Branch
            Mr. William Wong, Safe Drinking Water Branch

FROM: Michael D. Wilson, Chairperson
      Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application for Kau Citrus Well (Well No. 0240-01)

Transmitted for your review and comment is a copy of a Well Construction/Pump Installation Permit Application for Kau Citrus Well (Well No. 0240-01).

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 December 29, 1995.

Please find a map, attached, to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Charley Ice of the Commission staff at 587-0251.

Attachment(s)

RESPONSE: ( ) We have no comments
           ( ) Comments attached

Contact Person: ________________________________ Phone: __________________

Signed: __________________________ Date: __________________
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REMARKS:
LINE (1) Well No. 0240-01 (WCP/PIP)
LINE (2) Well No. 5553-03 (WCP/PIP)
LINE (3) Well No. 5825-04 (WCP/PIP)
LINE (4) Well No. 4950-02 (PIP)
Line (5) Well No. 0706-02 (PIP)
CITRUS MANAGEMENT SERVICES, INC.
dba KA‘U GOLD ORANGE
P.O. BOX 21  TEL. 929-7443
NAALEHU, HAWAII 96772

Fifty  \$50.00

TO THE ORDER OF

DEPT. OF LAND & NATURAL RESOURCES

DESCRIPTION

VOID AFTER 60 DAYS

Bank of Hawaii
WAIAKAMLO BRANCH
HONOLULU, HAWAII

$50.00

59-102/1213

100130
APPLICATION FOR

WELL CONSTRUCTION PERMIT
PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 713, Honolulu, Hawaii 96823. Application must be accompanied by a non-refundable filing fee of $11.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies. If necessary, phone 568-1942, Hydrology/Geology Section for assistance.)

1. WELL LOCATION
Island: Hawaii  Tax Map Key: 9-3-4-27
Address: Box 21, Naalehu, Hawaii 96772
(Attach a USGS map (scale 1"=2000") and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

   Firm Name: Morton Bassin Jr
   Contact Person: Morton Bassin Jr
   Address: Box 21, Naalehu, HI 96772
   Phone: 929-7443

   LANDOWNER
   Firm Name: Morton Bassin Jr
   Contact Person: Morton Bassin Jr
   Address: Box 21, Naalehu, HI 96772
   Phone: 929-7443

3. PROPOSED CONTRACTOR FOR:  
   Well Drilling  PUMP INSTALLATION

   Name: Contractor (Full Name)
   Address: Contractor (Address)
   Phone:

4. PROPOSED WORK
   □ Drill New Well
   □ Deepen
   □ Alter
   □ Install New Pump
   □ Seal
   □ Replace Pump
   □ Redrill
   □ Abandon
   □ Modify Pump

   (Briefly describe the proposed work and fill in the diagram on the back of this form.)

5. PROPOSED USE
   □ Municipal (Including hotels, stores, etc.)
   □ Military
   □ Domestic (individual, noncommercial water systems)
   □ Industrial
   □ Irrigation (specify amount in acre feet)
   □ Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL
   340,000 gallons per day

7. PROPOSED PUMP INFORMATION
   Pump Type: □ Vertical Turbine
   □ Submersible
   □ Centrifugal
   Motor:
   □ Diesel
   □ Gas
   □ Electric: 150 HP
   Rated Horsepower
   Capacity 250 gallons per minute (gpm)

Well Owner (print): Morton Bassin Jr
Landowner (print): Morton Bassin Jr
Signature: Morton Bassin Jr
Date: 10/29/95

For Official Use Only:
Field Checked By: Latitude: 18.284
Date: 10/29/95
Longitude: 155.235
State Well No.: 0240-01
Hydrologic Unit: 0240-01
Briefly describe the proposed work:

Drill two 12 1/2" holes to 1750' and case with 10" PVC casing, and install a pump in each well to pump 250 gpm of water.

PROPOSED SECTION OF WELL

Elevation at top of casing 1782 ft., msl.

Ground Elev. 1750 ft., msl.

Cement Grout 600 ft.

Hole Dia. 12 1/2 in.

Total Depth 1760 ft.

Rock Packing 400 ft.

Solid Casing: Material PVC
Length 1400 ft.
Diameter 10" in.
Wall thickness 1/4" in.

Casing: Not Perforated 1/1 Screen
Material PVC
Length 350 ft.
Diameter 10" in.
Wall thickness 1/4" in.
Openings 10" sq. in./L.F.

Open Hole:
Length 10'
Diameter 8" in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
APPLICATION FOR

X WELL CONSTRUCTION PERMIT
X PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send competed application with attachments to the Division of Water and Land Development, P.O. Box 372, Honolulu, Hawaii 96808. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7542, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key 9-3-4-27
Address Box 21 Naalehu, Hawaii 96772
(Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

Firm Name Morton Bassan, Jr
Contact Person Mont
Address Box 21 Naalehu, Hi 96772
Phone 929-7473

3. PROPOSED CONTRACTOR FOR:

☐ Well Drilling ☐ Pump Installation
Name owner-contractor (helcon 05/83)
Address
Contractor's License No.

4. PROPOSED WORK

☐ Drill New Well ☐ Deepen ☐ Install New Pump ☐ Redrill
☐ Alter ☐ Seal ☐ Replace Pump ☐ Abandon
☐ Modify Pump

(Briefly describe the proposed work and fill in the diagram on the back of this form.)

5. PROPOSED USE

☐ Municipal (including hotels, stores, etc.) ☐ Military
☐ Domestic (individual, noncommercial water systems) ☐ Industrial
☐ Irrigation (specify) ☐ Farm use
☐ Other (specify) ☐

6. PROPOSED AMOUNT OF WITHDRAWAL

☐ 360,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible ☐ Centrifugal
Motor: ☐ Diesel ☐ Gas ☐ Electric: 750 hp
Rated Pump Capacity 250 gallons per minute (gpm)

Well Owner (print) Morton Bassan Jr Landowner (print) Morton Jr & Keiko Bassan
Signature
Date 10/24/83

For Official Use Only:

Field Checked By Kekoa Date 11/24/83
Latitude Longitude
Hydrologic Unit State Well No. 240-01
Briefly describe the proposed work:

Drill two 12\(\frac{1}{4}\)" hole to 1750' and case with 10" PVC casing & install a pump in each well to pump 250 gpm of water.

**PROPOSED SECTION OF WELL**

- Elevation at top of casing 1752 ft., msl.
- Ground Elev. 1750 ft., msl.
- Cement, Grout 600 ft.
- Hole Dia. 12\(\frac{1}{4}\)in.
- Total Depth 1760 ft.
- Rock Packing 400 ft.
- Solid Casing:
  - Material: PVC
  - Length: 1400 ft.
  - Diameter: 10" in.
  - Wall thickness: \(\frac{1}{4}\)" in.
- Casing:
  - Perforated Screen
  - Material: PVC, Steel
  - Length: 350 ft.
  - Diameter: 10" in.
  - Wall thickness: \(\frac{1}{4}\)" in.
  - Openings: 30" sq. in./L.F.
- Open Hole:
  - Length: 10'
  - Diameter: 8" in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.*