EDWCP 6/30/88

CHECKLIST

WELL CONSTRUCTION and PUMP INSTALLATION PERMITS

WELL NAME or LOCATION: Waikoloa Resort Irrigation Well 3

WELL NUMBER: 5452-04

OWNER or OPERATOR: Waikoloa Resort Utilities

ADDRESS: P.O. Box 3028

Kamuela, Hawaii 96743

TELEPHONE: 885-1000 Stephen Green

Date application received ........................................ 7/16/89

Date acknowledged receipt ........................................... 8/01/89

Date of request for more information .................................. 

Date application accepted ............................................

Suspense date (90 days) ..................................................

Date filing fee deposited ............................................ 8/17/89

Date sent to DOH for comments .................................... 8/10/89

Date comments received from DOH ................................. 8/16/89

Date application approved or disapproved .......................... 9/13/89

Date applicant notified of decision .................................. 9/27/83

REMARKS: __________________________________________________________

__________________________________________________________________

__________________________________________________________________
To: ROY HARDY - CWRE

From: Tom Nance

Subject: South Korea Water Users Group

Fax No.: 6

Date: Jan. 31, 2000

No. of Pages: 9 (including header)

(1) Copy of the signed Memorandum of Understanding (pp. 2-5)

(2) Unsigned copy of Policies and Procedures (pp. 6-9)

680 Ala Moana Boulevard, Suite 405 - Honolulu, Hawaii 96813-5411 - Phone: (808) 537-1141 - Fax: (808) 538-7757

Ryan - Found this. Should put copies in relevant Big Island well folders
MEMORANDUM OF UNDERSTANDING BETWEEN MAUNA
KEA PROPERTIES, INC., MAUNA LANI RESORT, INC.,
NANSAY HAWAII, INC. AND WAIKOLOA LAND COMPANY
ON COOPERATIVE REGIONAL WATER DEVELOPMENT

Mission Statement

To work jointly and cooperatively in developing and implementing a regional water plan which best serves the collective water needs of the parties and others within the region in a manner acceptable to relevant governmental authorities.

Objectives

The parties to this Memorandum of Understanding (collectively referred to as "South Kohala Water Study Group" or "Group") acknowledge and agree that it is in their long-term best interests to achieve the Mission set forth above in the following manner:

- Reach agreement on a regional plan for the development of sources and distribution systems for potable, non-potable water and effluent reuse;
- Form and establish, as equity participants, a private, regional water company or companies for the development, production, distribution and sale of potable, non-potable and effluent reuse resources serving the parties and others within the region;
- Reach bilateral and multilateral agreements achieving the staged implementation of the regional water plan;
- Publicly support and consider the commitment to the conditional, partial funding of the County of Hawaii Department of Water Supply's (DWS) development of its planned North Kohala Pipeline;
- Develop a Water Commitment Policy, which is incorporated herein by reference, containing guidelines and requirements for each Group Member securing a sufficient supply of water for actual use in accordance with a realistic timetable;


Coordinating the activities of the Water Study Group with all relevant State of Hawaii authorities, including but not limited to its Water Commission, in a manner which promotes and preserves the Group's ability to deal with regional water issues on a collective basis;

Communicate, where appropriate, with other interested parties within the region;

Enter into subsequent joint agreements intended to implement the objectives adopted herein.

**Governance**

The activities of the Group shall be governed and coordinated through an Executive Committee comprised of a designated representative of each signatory to this Memorandum of Understanding.

The Group Executive Committee shall:

- Approve all policies, agreements and expenditures made on behalf of the Group; provided, that if the representative of any Group member specifically disapproves of any such expenditure, that Group member shall be excused from its pro rata share of such expenditure;

- Approve the inclusion of additional members to and approve, except member in question, for the exclusion of existing members from the Water Study Group;

- Approve public statements and testimony regarding Water Study Group activities;

- Develop and approve an annual operating budget, project budgets and the individual party's obligations to fund the operations and the development of these planned projects;

- Be kept informed of all agreements entered into between Water Study Group members affecting the Group's Mission and Objectives;

- Coordinate all contact regarding the activities of the Water Study Group with governmental agencies;
Direct and approve the activities of all consultants retained by the Water Study Group relating to its stated Mission and Objectives.

All decisions of the Group shall be by the majority of the members of the Executive Committee except for "key decisions" which require unanimous approval. Key decisions include approval of the annual operating budget and individual members' obligation to fund operations or make contributions to the development of planned projects, expenditures which are outside of the approved budget in excess of $5,000 in any single case or $25,000 in the aggregate and the addition of any new member to the Executive Committee.

Dispute Resolution

It is acknowledged that from time to time, disputes and disagreements may arise between the parties to this Memorandum of Understanding regarding regional water issues and that it is in their long-term collective best interests that such disputes be resolved without resort to governmental or judicial involvement.

The parties agree that they shall use their individual and collective best efforts to resolve any and all outstanding issues covered by this Memorandum. The parties further agree that in the event negotiations fail to result in acceptable agreement or resolution, they may voluntarily submit outstanding issue(s) to binding or nonbinding arbitration pursuant to terms agreed to by the parties.

North Kohala Pipeline

The parties agree to support the concept of a North Kohala pipeline transporting potable water to South Kohala being pursued by the Department of Water Supply, County of Hawaii.

In the event that the parties are reasonably satisfied that the North Kohala pipeline will be built, but no later than the start of construction, individual signatories to this agreement shall commit, on a fair and equitable basis, to the partial funding of said pipeline under acceptable terms and conditions to be negotiated.
Termination/Withdrawal

A majority of the members of the Group may terminate the Group and joint obligations contained in this Memorandum of Understanding. Individual Group members may withdraw from the South Kohala Water Study Group upon written notice to other members; provided, that members shall remain liable for their or its pro-rata share of costs of operations per the approved budget or amendments thereto, incurred during their membership or prior to withdrawal, as the case may be.

This Memorandum of Understanding is entered into this 9th day of February, 1993.

MAUNA KEA PROPERTIES, INC.  NANSAY HAWAII, INC.

By /s/ [Signature]  By /s/ [Signature]

MAUNA LANI RESORT, INC.  WAIKOLOA LAND COMPANY

By /s/ [Signature]  By /s/ [Signature]

Vice President  President
The South Kohala Water Users Group ("Group") recognizes the need to develop a coherent set of policies and procedures for the development of groundwater to ensure maximum beneficial use of this limited resource, avoid conflicts among users, and facilitate the timely development of water tied to actual use. The parties to this document agree to abide by the policies and procedures it contains and encourage the State Commission on Water Resource Management ("Commission") to evaluate all drilling and pump installation permits received from other water users in the basin by the same criteria.

POLICIES

1. **The group recognizes that all parties need assurance of the availability of water for their developments.** The group further recognizes that such assurances can occur only if it is agreed to by all parties.

2. **All drilling, well modification, and pump installation permits will be formulated to conform to the intent of the then current version of the Group's approved South Kohala Water [Master] Resource Plan.**

3. **All drilling, well modification, and pump installation permits will be submitted to the Group for its approval prior to submittal to the Commission. The Group's approval shall be based on the applicant's conformance with these policies, and the procedures listed below. The Group's approval shall not be unreasonably withheld if such conformance is demonstrated.**

4. **To minimize excessive use of groundwater, all effluent from sewage treatment plants shall be reused for irrigation unless it can be conclusively demonstrated to be physically and/or economically impractical for the developer of the irrigation supply or the ultimate user of the water.**
4. All new landscaping, including golf course turfgrass, will be designed and implemented to minimize irrigation use. Efforts toward this end shall include choosing appropriate plant materials, use of proper soil types and thickness, and avoiding excessive turfgrass areas. Any new 18-hole golf course shall not use more than 0.75 MGD on year-round average nor more than 1.00 MGD over any seven-day period.

5. All new hotel, residential, commercial, and industrial development shall be designed to minimize water use and shall include appropriate water saving devices.

6. Drilling permits should be supported if consistent with the Water Resource Plan as they provide much needed information about this region's aquifer.

7. [Drilling and] Pump installation permits shall not be sought more than two years in advance of actual need [to avoid creating false shortages of supply and inappropriate positioning for the resource, potentially denying others their fair and equitable use].

8. Members of the Group agree to devise water use standards for consumption of potable and irrigation water use in order to implement these policies.

9. It is recognized that agreements between two or more parties may be necessary to facilitate respective water development. [Such agreements shall be consistent with these policies and procedures.]

PROCEDURES

1. All applications for drilling, well modification, and pump installation permits, including extensions of these permits, will be submitted for review and approval by the Group to ensure conformance with the intent of the Group’s policies and [master] water resource plan prior to submittal to the Commission.

2. To initiate the Group's review, application will be submitted with the following supporting information:

   a. Quantity [and timing] of potable and/or non-potable supply requirements, including the basis for these projections (unit counts, acreage, etc.).
b. Measures taken to avoid excessive potable and/or non-potable water use.

c. Exact location of the water uses, including land use plans, TMKs, etc.

d. Approved State land use designation; County General Plan designation; County zoning; use permit for district use; and the prospective land use approvals, including subdivision, needed to achieve the desired land use.

e. The project's site specific water master plan for potable and not potable water shall be submitted.

f. Exact location, dimensions, and pump capacity of the well (or wells) to be developed to meet these supply requirements.

[g. A development schedule indicating the date of actual water use.]

3. The Group's review and response to the application shall be completed within 45 days. The response shall judge the application's conformance with these policies, and with the South Kohala Water [Master] Resource Plan, [the appropriateness of the timing of the application.] and the [Un]less there are compelling reasons, the timing of an application shall be deemed inappropriate unless all land use approvals through and including County zoning have been received and the actual use of water, based on a firm schedule, is to begin within two years.]

Listed below are specific criteria of the Group's review of applications.

a. If conformance with these policies and procedures is demonstrated [and the timing of the application is appropriate.] the Group's approval shall not be unreasonably withheld.

b. If the application fails to meet the standards for acceptability set out herein, no submittal of the application to the Commission shall be made until revisions satisfactory to the Group are made.

c. The Group's approval for a pump installation permit shall be given only after tentative subdivision approval for the project to be served has been given.

d. If a proven water source is a condition of County zoning or use permit approvals, the Group's approval of a well construction permit shall be given only if evidence of the actual water use within two years is provided.]
These Water Commitment Policies and Procedures are entered into this day of __________, 1993.

Mauna Kea Properties, Inc.
By: ______________
Its

Nansay Hawaii, Inc.
By: ______________
Its

Mauna Lani Resort, Inc.
By: ______________
Its

Waikoloa Land Company
By: ______________
Its
WELL USAGE REPORT FOR MONTHS OF JANUARY 1989 THROUGH DECEMBER 1989
(In thousands of gallons)

<table>
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<tr>
<th>STATE NO.</th>
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<th>5452-02</th>
<th>5452-01</th>
<th>5548-01</th>
<th>5452-03</th>
<th>5552-01</th>
<th>5551-01</th>
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<td>P-4</td>
<td>P-5</td>
<td>51 FOOT**</td>
<td>NURSERY</td>
<td>P-1</td>
<td>IW #1</td>
<td>IW #2**</td>
<td>IW #3</td>
</tr>
<tr>
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<td>*</td>
<td>32,840</td>
<td>40,341</td>
<td>12,600</td>
<td>***30,240</td>
<td>21,470</td>
<td>**16,429</td>
<td>30,240</td>
<td>++</td>
</tr>
<tr>
<td>02/28/89</td>
<td>*</td>
<td>24,505</td>
<td>32,321</td>
<td>10,080</td>
<td>***24,192</td>
<td>8,050</td>
<td>**13,144</td>
<td>28,224</td>
<td>++</td>
</tr>
<tr>
<td>03/28/89</td>
<td>*</td>
<td>26,908</td>
<td>32,199</td>
<td>10,080</td>
<td>***24,192</td>
<td>15,323</td>
<td>**13,144</td>
<td>28,224</td>
<td>++</td>
</tr>
<tr>
<td>05/02/89</td>
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<td>28,453</td>
<td>39,710</td>
<td>12,600</td>
<td>***30,240</td>
<td>6,703</td>
<td>**16,429</td>
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<td>++</td>
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<tr>
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All values are from water meter readings unless noted
* - WW #1 began pumping in May 1989
** - Estimated
*** - Estimated by 8 month meter average
+++ - Pump broken

* - Estimate by 4-month meter average
++ - IW #3 began pumping in Sept. 1990
+++ - IW #3 began pumping in Sept. 1990
WELL USAGE REPORT FOR MONTHS OF JANUARY 1990 THROUGH FEBRUARY 1991
(in thousands of gallons)

<table>
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<tr>
<th>STATE NO.</th>
<th>WELL NAME</th>
<th>5745-03 WW #1</th>
<th>5745-02 P-4</th>
<th>5745-01 P-5</th>
<th>5452-02 51' NURSERY</th>
<th>5452-01 P-1</th>
<th>5548-01 IW #1</th>
<th>5452-03 IW #2</th>
<th>5552-01 IW #2</th>
<th>5551-01 IW #3</th>
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<td>01/30/90</td>
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<td>7,530</td>
<td>8,073</td>
<td>1,724</td>
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In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a 500 gallons-per-minute pump in Waikoloa Resort Irrigation Well (Well No. 5551-01) for golf course irrigation, is approved subject to the following conditions:

1. The Division of Water Resource Management (DWRM), P.O. Box 373, Honolulu, Hawaii 96809, shall be notified, in writing, before any work covered by this permit commences.

2. The proposed use shall not adversely affect existing legal uses in the area.

3. The applicant shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting total water usage on a monthly basis.

4. The following shall be submitted to DWRM, within 30 days after completion of the work:
   a. Well Completion Report.
   b. As-built sectional drawing of the well.

5. The applicant shall comply with all applicable laws, rules, and ordinances.
6. This permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The work shall be completed within two years of the date of issuance.

JAN 7 1991

WILLIAM W. PATY

Date of Issuance

cc: USGS
    Department of Health
    Drinking Water Branch
    Ground Water Protection Program
    Hawaii Department of Water Supply
Waikoloa Resort Utilities  
P.O. Box 3028  
Kamuela, Hawaii 96743

Dear Applicant:

We have received your application and filing fee to install a pump in Waikoloa Irrigation Well No. 3 (Well No. 5551-01) at TMK: 6-8-01:5, Anaehoomalu, South Kohala, Hawaii. We are reviewing your application for completeness and will contact you if we need more information.

Please call Gordon Akita at 548-7496 if you have any questions.

Sincerely,

[Signature]

MANABU TAGOMORI  
Deputy Director

ES: mh
TO: DIVISION OF WATER & LAND DEVELOPMENT  
P O BOX 373 
HONOLULU HI 96809  
ATTN: ____________________________

GENTLEMEN:

WE ARE SENDING YOU ☑ ATTACHED ☐ UNDER SEPARATE COVER VIA ________________________ THE FOLLOWING ITEMS:

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<th># COPIES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
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<td>CHECK #5475 in the amount of $25.00</td>
</tr>
<tr>
<td>1</td>
<td>APPLICATION FOR PUMP INSTALLATION PERMIT</td>
</tr>
<tr>
<td>1</td>
<td>WELL COMPLETION REPORT</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
☐ As requested  ☐ Returned for corrections  ☐ Return ____ corrected prints
☐ For review & comment  ☐ ____________________________

REMARKS: Gentlemen: Enclosed are the above listed items. Should you have any questions, please call me at 885-1000.

Mahalo and aloha . . .

CC: ____________________________

SIGNED: ________________________
Stephen Green
Chief Engineer
**IKOLOA DEVELOPMENT CO., LTD. PARTNERSHIP • IMPREST ACCOUNT • WAIKOLOA, HAWAII 96743**

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<tr>
<th>DATE</th>
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<th>DESCRIPTION</th>
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<th>BALANCE</th>
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**TOTALS**

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<td>25.00</td>
<td>5475</td>
<td>SEP 28, 1990</td>
<td>5475</td>
</tr>
</tbody>
</table>

PAY: TWENTY FIVE DOLLARS AND NO CENTS

DEPT. OF LAND & NATURAL RESOURCES
P.O. BOX 936
HILO, HI 96720

KAMUELA BRANCH
FIRST HAWAIIAN BANK
KAMUELA, HAWAII

59-101
1213

**PAYMENT**

**DATE**

**CHECK NO.**

**AMOUNT**

SEP 28, 1990  5475  $********25.00***
APPLICATION FOR

WELL CONSTRUCTION PERMIT

X 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 373, Honolulu, Hawaii 96809. 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 148-1742, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key 6-8-01:05
Address Anaehoomalu, South Kohala: Well No. 5551-01 (Well Construction No. 5446-01)
(Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

Firm Name Waikoloa Resort Utilities
Contact Person Stephen Green
Address P. O. Box 3028
Kamuela, Hawaii 96743
Phone 885-1000

LANDOWNER

Firm Name Waikoloa Resort Utilities
Contact Person Stephen Green
Address P. O. Box 3028
Kamuela, Hawaii 96743
Phone 885-1000

3. PROPOSED CONTRACTOR FOR: ☐ Well Drilling ☐ Pump Installation

Name Roscoe Moss Company
Address 830 Ahua Street
Honolulu, Hawaii 96819

Contractor's License No. C-5101
Phone 839-6888

4. PROPOSED WORK

☐ Drill New Well ☐ Deepen
☐ Alter ☐ Seal
☐ Install New Pump ☐ 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) Golf Course Irrigation ☐ Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL Up to 720,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible
☑ Centrifugal Motor: ☐ Diesel ☐ Gas ☐ Electric: 20 Rated Horsepower
Rated Pump Capacity 500 gallons per minute (gpm)

Well Owner (print) Waikoloa Resort Utilities Landowner (print) Waikoloa Resort Utilities
Signature ____________________________ Signature ____________________________
Date 9-12-90 Date ____________________________

For Official Use Only:
Field Checked By ____________________________ Latitude ____________________________ Hydrologic Unit ____________________________
Date ____________________________ Longitude ____________________________ State Well No. 5551-01
Briefly describe the proposed work:
A new pump will be installed in the recently completed well 5551-01 (also known as Waikoloa Irrigation Well No. 3). It will provide additional irrigation supply for the Waikoloa Beach Resort golf courses.

**PROPOSED SECTION OF WELL**

<table>
<thead>
<tr>
<th>Elevation at top of casing</th>
<th>92 ft., msl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Grout</td>
<td>60 ft.</td>
</tr>
<tr>
<td>Hole Dia.</td>
<td>16 in.</td>
</tr>
<tr>
<td>Total Depth</td>
<td>110 ft.</td>
</tr>
<tr>
<td>Rock Packing</td>
<td></td>
</tr>
</tbody>
</table>

**Ground Elev.** 92 ft., msl*

- **Solid Casing:**
  - Material: Steel (ASTM A-53)
  - Length: 90 ft.
  - Diameter: 12 in.
  - Wall thickness: 0.3125 in.

- **Casing:** / /Perforated /X/Screen
  - Material: Steel
  - Length: 10 ft.
  - Diameter: 12 in.
  - Wall thickness: 0.3125 in.
  - Openings: ___ sq. in./L.F.

- **Open Hole:**
  - Length: 10 feet
  - Diameter: 16 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.
INSTRUCTIONS: Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96803. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology, Geology Section for assistance.

A. STATE WELL NO. 5551-01 WELL NAME Waikoloa Irrigation
   ISLAND Hawaii

B. LOCATION Anaehoomal, South Kohala TAX MAP KEY 6-8-01:05

C. WELL OWNER Waikoloa Resort Utilities

D. DRILLING OR PUMP INSTALLATION CONTRACTOR Fred Page Drilling International

E. TYPE OF RIG Cable Tool
   DRILLER Scott Couch

F. DATE OF WELL COMPLETION 1-5-90 DATE OF PUMP INSTALLATION

G. GROUND ELEVATION (ma) 92 ft.
   Height of drilling platform above ground surface __________ ft.
   Bench mark and method used to determine ground elevation __________ ft.

H. TOTAL DEPTH OF WELL BELOW GROUND 110 feet

I. HOLE SIZE: 16 inch dia. from 0 ft. to 110 ft. below ground
   inch dia. from 0 ft. to 110 ft. below ground
   inch dia. from 0 ft. to 110 ft. below ground

J. CASING INSTALLED: 12 in. I.D. x 0.3125 in. wall solid section to 90 ft. below ground
   12 in. I.D. x 0.3125 in. wall perforated section to 10 ft. below ground
   Screen

K. ANNULUS: Grouted from 0 ft. to 60 ft. below ground
   Gravel packed from ft. to ft. below ground

L. PERMANENT PUMP INSTALLATION:
   Capacity __________ gpm
   Pump type, make, serial No.
   Motor type, H.P., voltage, R.P.M.
   Depth of pump intake setting __________ ft. below ground
   Depth of Bottom of Airline __________ ft. below ground
   which elevation is __________ ft.
   which elevation is __________ ft.

M. PROPOSED USE Golf Course Irrigation

N. INITIAL WATER LEVEL 90 ft. below ground.
   Date and time of measurement 1-2-90 / 9:10 am
   Date and time of sampling 1-2-90 / 10:52 am

O. INITIAL CHLORIDE 585 ppm.

P. PUMPING TESTS: Reference point (R.P.) used: Top Casing which elevation is 92 ft.
   Date 1-2-90
   Start water level 90 ft. below R.P.
   End water level 90 ft. below R.P.
   Depth of well 110 ft. below R.P.

<table>
<thead>
<tr>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw-down (ft)</th>
<th>Cl-(ppm)</th>
<th>Temp. (°F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25 to 0.67</td>
<td>0.25</td>
<td>460</td>
<td>0.92</td>
<td>70</td>
</tr>
<tr>
<td>0.67 to 1.17</td>
<td>0.67</td>
<td>620</td>
<td>1.58</td>
<td>70</td>
</tr>
<tr>
<td>0.92 to 1.17</td>
<td>1.17</td>
<td>800</td>
<td>2.45</td>
<td>70</td>
</tr>
</tbody>
</table>

Q. DRILLER'S LOG:

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft.)</th>
<th>Depth (ft.)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

REMARKS:

Submitted by (print) Stephen C. Green Title Chief Engineer

Signature Stephen C. Green Date Sept. 18, 1990
To: Dowell

Attention: Ed Sokaba

From: Tom Nance

Subject: Waikoloa's Irrigation Wells

If you do not receive all pages, please telephone immediately.

Following are sections of the Anahoomalu and Punauimauq quest maps on which I've located Waikoloa Resort's irrigation wells. I've given them I.D. numbers based on the chronological sequence of their development. If those don't match yours, please let me know. Some data:

<table>
<thead>
<tr>
<th>Well No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5452-01</td>
<td>An open pit next to the Finum resort nursery; excavated with bulldozer years ago; outfitted with a 750 GPM pump and run continuously.</td>
</tr>
<tr>
<td>5450-02</td>
<td>8&quot; diameter vertical shaft, dug with jackhammers to a depth of 55± feet; outfitted with a 280 GPM pump and run continuously.</td>
</tr>
<tr>
<td>5452-03</td>
<td>Drilled well by Fred Peje several years ago; has a 350 GPM pump which runs 90% of the time.</td>
</tr>
<tr>
<td>5552-01</td>
<td>Also drilled by Fred Peje; 600 GPM pump runs continuously.</td>
</tr>
<tr>
<td>5551-01</td>
<td>Recent well by Fred Peje; in the process of being outfitted with a 475 GPM pump.</td>
</tr>
</tbody>
</table>

If you do not receive all pages, please telephone immediately.
Walkoloa Well No. 3

Drilling Log

10 - 20  Mod. hard, black pahoehoe
20 - 30  Hard, light gray basalt (a'a?)
30 - 40  Brown pahoehoe
40 - 80  Brownish-black and dark gray pahoehoe flows
80 - 95  Hard, gray a'a lava
95 - 105  Dark brown pahoehoe
105 - 110 Light gray basalt (a'a?)
<table>
<thead>
<tr>
<th>Date</th>
<th>Time of Day</th>
<th>Elapsed Time (Minutes)</th>
<th>Flowrate (GPM)</th>
<th>Drawdown Measurement (FT)</th>
<th>Drawdown (FT)</th>
<th>Chlorides (PPM)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 2</td>
<td>9:10 AM</td>
<td>Prior to Start</td>
<td>0</td>
<td>90</td>
<td></td>
<td>Static Level 2⁺</td>
</tr>
<tr>
<td></td>
<td>9:15</td>
<td>0</td>
<td>Started Pump</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>9:35</td>
<td>25</td>
<td>300</td>
<td>90.25</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9:45</td>
<td>35</td>
<td>300</td>
<td>90.25</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>9:50</td>
<td>40</td>
<td>460</td>
<td>90.83</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:00</td>
<td>50</td>
<td>460</td>
<td>90.92</td>
<td>0.92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:10</td>
<td>60</td>
<td>460</td>
<td>90.92</td>
<td>0.92</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:15</td>
<td>65</td>
<td>620</td>
<td>91.58</td>
<td>1.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:25</td>
<td>75</td>
<td>620</td>
<td>91.58</td>
<td>1.58</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:30</td>
<td>80</td>
<td>800</td>
<td>92.33</td>
<td>2.33</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:40</td>
<td>90</td>
<td>800</td>
<td>92.45</td>
<td>2.45</td>
<td></td>
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<tr>
<td></td>
<td>10:50</td>
<td>100</td>
<td>Stopped Pump</td>
<td>89.96</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:52</td>
<td>102</td>
<td>Start Long-Term Pump Test</td>
<td>91.92</td>
<td>1.92</td>
<td>585</td>
</tr>
<tr>
<td></td>
<td>2:00 PM</td>
<td>102</td>
<td>700</td>
<td></td>
<td>-</td>
<td>555</td>
</tr>
<tr>
<td></td>
<td>8:00</td>
<td>650</td>
<td>700</td>
<td></td>
<td>-</td>
<td>555</td>
</tr>
<tr>
<td>Jan 3</td>
<td>2:00 AM</td>
<td>1010</td>
<td>700</td>
<td></td>
<td>-</td>
<td>560</td>
</tr>
<tr>
<td></td>
<td>8:00</td>
<td>1370</td>
<td>700</td>
<td></td>
<td>-</td>
<td>560</td>
</tr>
<tr>
<td></td>
<td>8:00</td>
<td>Stop Pump</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As-Built - Waikoloa Irrigation Well No. 3
WELL CONSTRUCTION PERMIT
for
Waikoloa Resort Irrigation Well 3
Well No. 5452-02
Anaehoomalu, South Kohala, Hawaii

TO: Waikoloa Resort Utilities
P.O. Box 3028
Kamuela, Hawaii 96743

In accordance with the 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 Well No. 5452-02 within Tax Map Key: 6-8-01:05 for golf course irrigation use is approved, subject to the following conditions:

1. The Division of Water and Land Development (DOWALD), Geology-Hydrology Section, shall be notified at 548-7619, before any work covered by this permit commences.

2. The permit shall be for construction and testing only. No permanent pump may be installed and no water used from the well without the necessary pump installation permit from the Commission.

3. The grouted annulus of the well shall be a minimum of from 0 to 60 ft. instead of from 0 to 30 ft. as proposed.

4. The following shall be submitted to DOWALD within 30 days after completion of the well:
   a. Well Completion Report.
   b. Elevation (referenced to mean sea level) 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 record; including time, pumping rate, drawdown, chloride content, and water quality data.
5. The applicant shall comply with all applicable laws, rules, and ordinances.

6. This permit may be revoked if work is not started within six months of date of issuance or if work is suspended or abandoned for six months. The work shall be completed within two years of the date of issuance.

SEP 27 1989

Date of Issuance

cc: USGS
Department of Health,
Drinking Water Program
Ground Water Protection Program
Hawaii Department of Water Supply

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management
The Honorable William W. Paty, Chairperson  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Paty:

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATION  
WAIKOLOA RESORT IRRIGATION WELL 3  
STATE WELL NO. 5452-02  
ANAEHOOMALU, SOUTH KOHALA, HAWAII

Thank you for the opportunity to comment on the well drilling permit for the proposed well. We offer the following comments.

1. Because the exploratory well will be intended for golf course irrigation use only, it will not be subject to the State's Potable Water Systems Regulations, Chapter 20, Title 11, Administrative Rules.

2. The well site is situated above the Underground Injection Control (UIC) line. Land areas above the UIC line are considered to contain underground sources of drinking water. It is essential that the well is designed and constructed so that it does not in itself contribute to groundwater contamination. For example, the well should have a concrete well pad to prevent seepage or floodwaters from migrating down the well shaft.
If you have any questions, please contact the Safe Drinking Water Branch at 548-2235.

Very truly yours,

[Signature]

For JOHN C LEWIN, M.D.
Director of Health

cc: Stephen Green
Waikoloa Resort Utilities
P.O. Box 3028
Kamuela, Hawaii 96743
September 8, 1989

Waikoloa Resort Utilities
P.O. Box 3028
Kamuela, Hawaii 96743

Gentlemen:

The Commission on Water Resource Management will be acting on your permit application for Waikoloa Resort Irrigation Well 3 at their meeting on September 13, 1989, at 2:00 p.m. Please note that the meeting will take place in Lihue, Kauai, at the State Office Building, Conference Rooms A and B, 3060 Elua Street.

Your application will be included on the agenda as Item 9 (attached).

You or your representative are invited to attend the meeting.

Sincerely,

[signature]

MANABU TAGOMORI
Deputy Director

ES:bm
Attach.
August 17, 1989

MR MANABU TAGOMORI
DEPUTY DIRECTOR
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P O BOX 621
HONOLULU HI 96809

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATION
HAWAIIAN RIVIERA RESORT WELL (0443-01)
KAUPULEHU - PIA - KONA WELL (4757-01)
WAIKOLOA RESORT IRRIGATION WELL 3 (5452-02)

We have reviewed the subject permit application and have no objections to the proposed well construction.

ROBERT K. YANABU, DIVISION CHIEF
Engineering Division

STT:ama
August 15, 1989

Mr. Manabu Tagomori, Deputy Director
Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, HI 96809

WELL CONSTRUCTION PERMIT APPLICATIONS
HAWAII RIVIERA RESORT WELL (0433-01)
KAUPULEHU-PIA-KONA WELL (4757-01)
WAIKOLOA RESORT IRRIGATION WELL 3 (5452-02)

We have no objections to the subject permit applications.
Honorable John C. Lewin, M.D.
Director of Health
Department of Health
1250 Punchbowl Street
Honolulu, Hawaii 96813

Attention: Mr. Thomas Arizumi, Drinking Water Program

Dear Dr. Lewin:

Well Construction Permit Applications

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168-12(c), we are sending you a copy of the following permit applications:

Hawaiian Riviera Resort Well (0443-01)
Kaupulehu-PIA-Kona Well (4757-01)
Waikoloa Resort Irrigation Well 3 (5452-02)

Please submit your comments to us, orally or in writing, within three weeks from the date of this letter.

If you have any questions, please contact Hanshu Tagomori at 548-7533.

Very truly yours,

WILLIAM W. PATY

Enc.
August 8, 1989

Mr. Hugh Y. Ono
Chief Engineer
Department of Public Works
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Ono:

Well Construction Permit Applications

We are sending you a copy of the following permit applications for your review and comments:

- Hawaiian Riviera Resort Well (0443-01)
- Kaupulehu-PIA-Kona Well (4757-01)
- Waikoloa Resort Irrigation Well 3 (5452-02)

Please submit your comments to us, orally or in writing, within three weeks from the date of this letter.

If you have any questions, please contact Dan Lum at 548-7643.

Sincerely,

NANABU TAGOHORI
Deputy Director

FS:bm
Enc.
August 8, 1989

Mr. William Sewake, Manager
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Sewake:

Well Construction Permit Applications

We are sending you a copy of the following permit applications for your review and comments:

Hawaiian Riviera Resort Well (0443-01)
Kaupulehu-PIA-Kona Well (4757-01)
Waikoloa Resort Irrigation Well 3 (5452-02)

Please submit your comments to us, orally or in writing, within three weeks from the date of this letter.

If you have any questions, please contact Dan Lum at 548-7643.

Sincerely,

MANABU TAGOMORI
Deputy Director

ES:bm
Enc.
<table>
<thead>
<tr>
<th>DATE</th>
<th>INVOICE NO.</th>
<th>DESCRIPTION</th>
<th>INVOICE AMOUNT</th>
<th>DEDUCTION</th>
<th>BALANCE</th>
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<tbody>
<tr>
<td>08-01-89</td>
<td>8189</td>
<td>DRILLING PERMIT FEE, WAIKOLOA RESORT IRR. WELL (WELL NO. 5452-02)</td>
<td>25.00</td>
<td>25.00</td>
<td>25.00</td>
</tr>
</tbody>
</table>

**CHECK**

<table>
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<tr>
<th>DATE</th>
<th>CHECK NUMBER</th>
<th>TOTALS</th>
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<tbody>
<tr>
<td>AUG 8, 1989</td>
<td>2084</td>
<td>25.00</td>
</tr>
</tbody>
</table>

**PLEASE DETACH THIS PORTION AND RETAIN FOR YOUR RECORDS.**

---

**NAIKOLOA RESORT UTILITIES**

**OPERATING ACCOUNT**

P. O. BOX 3028
WAIKOLOA, HAWAII 96743

**PAY: TWENTY FIVE DOLLARS AND NO CENTS**

**DATE**

AUG 8, 1989

**CHECK NO.**

2084

**AMOUNT**

$25.00

**PAY TO THE ORDER OF**

DEPT. OF LAND & NATURAL RESOURCES DIV. OF WATER
1151 PUNCHBOWL STREET
HONOLULU, HI 96813

**FILING FEE: WAIKOLOA RESORT IRR. WELL (5452-02)**
August 1, 1989

Weikoloa Resort Utilities
P.O. Box 3028
Kamuela, Hawaii 96743

Gentlemen:

We acknowledge receipt of your application for a well construction permit for Weikoloa Resort Irrigation Well 3 (5551-01) at Anaehoomalu, South Kohala, Hawaii.

Our Department’s administrative rules require a $25.00 filing fee to accompany each well construction permit. Please send the $25.00 filing fee, payable to the Department of Land and Natural Resources, to P.O. Box 373, Honolulu, Hawaii 96809.

My staff will be processing the permit and will contact your staff should there be any questions.

Sincerely,

[Signature]

MANABU TAGOMO'I
Deputy Director

ES:ke
cc: Tom Nance
DIVISION OF WATER RESOURCE MANAGEMENT

FROM: [Signature]  DATE: 10/01/84  FILE IN: 5551-01  5452-02

TO: INITIAL:  PLEASE:  REMARKS:

1. M. TAGOMORI  See Me
2. D. Lum
3. G. Matsumoto
4. G. Akita
5. L. Chang
6. Y. Shiroma

7. E. Sakoda 7/31
8. D. Nakano
9. W. Rozeboom
10. P. Haraguchi
11. S. Samuels
12. R. Chung
13. T. Kam
14. A. Monden
15. H. Young
16. R. Suzuki
17. N. Kaneshiro
18. T. Nakama

FILE

ROUTE TO YOUR BRANCH

REVIEW & COMMENT

DRAFT REPLY

ACKNOWLEDGE RECEIPT

XEROX ___ COPIES

FILE

MAIL

FOR INFORMATION

FILE

MAIL

FOR INFORMATION

S. Kokubun
D. Hamada
L. Nanbu
F. Ching
July 13, 1989

Division of Water Resource Management  
Department of Land and Natural Resources  
1151 Punchbowl Street, Room 227  
Honolulu, HI 96813

RE: Application for Well Construction Permit

Gentlemen:

Please find enclosed an application and map to construct an irrigation well in Waikoloa near Anaehoomalu, South Kohala.

Design work is being done by Belt Collins & Associates, and so far a contractor has not been selected.

Please contact me if there are any questions.

Sincerely,

Stephen Green  
Project Engineer

SG: jg
APPLICATION FOR

X 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 373, Honolulu, Hawaii 96808. Application must be accompanied by a non-refundable filing fee of $15.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7443, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key 6-8-01-005

Address Anaehoomalu, South Kohala

(Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

Firm Name Waikoloa Resort Utilities

Contact Person Stephen Green

Address P.O. Box 3028

Kamuela, HI 96743

Phone 885-1000

3. PROPOSED CONTRACTOR FOR: [x] Well Drilling [ ] Pump Installation

Name unknown

Address

Contractor’s License No.

4. PROPOSED WORK

[x] Drill New Well [ ] Deepen [ ] Redrill

[ ] Alter [ ] Seal [ ] Abandon

[ ] Install New Pump [ ] Replace Pump [ ] 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, non-commercial water systems) [ ] Industrial

[ ] Irrigation (specify) golf course [ ] Other (specify) ____________

6. PROPOSED AMOUNT OF WITHDRAWAL 432 to 1 m gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: [x] Vertical Turbine [ ] Submersible [ ] Centrifugal

Motor: [ ] Diesel [ ] Gas [ ] Electric: _____ Rated Horsepower

Rated Pump Capacity 300-700 gallons per minute (gpm)

Well Owner (print) Waikoloa Resort Utilities

Signature ____________________________

Date ______/

Landowner (print) Waikoloa Resort Utilities

Signature ____________________________

Date ______/

For Official Use Only:

Field Checked By ____________________________

Latitude ____________________________

Hydrologic Unit ____________________________

State Well No. 5451-01

5452-0 ____________________________

55/101
Briefly describe the proposed work:

Drill additional well similar to previously constructed irrigation wells at Waikoloa Beach Resort.

PROPOSED SECTION OF WELL

Elevation at top of casing ft., msl.

Cement Grout 30 ft.

Hole Dia. 16 in. (min.)

Total Depth 90 ft.

Rock Packing none ft.

Ground Elev. 80 ft., msl*

Solid Casing: Steel Material (ASTM A 53)

Length 80 ft.

Diameter 12 (ID) in.

Wall thickness 0.3125 in.

Casing: / Perforated / Screen Material steel

Length 20 ft.

Diameter 12 ID in.

Wall thickness 0.3125 in.

Openings sq. in./L.F.

Open Hole:

Length 10 ft.

Diameter 10 ± 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.