WAIKOLOA
DESTINATION RESORT COMMUNITY
South Kohala, Island of Hawaii
Facsimile Header

To: ROY HARDY - CWWM

From: Tom Nance

Subject: SOUTH KOREA WATER USERS GROUP

Fax No.: 6

Date: Jan. 21, 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;
Coordinate 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_, 1998.

MAUNA KEA PROPERTIES, INC.                     NANSAY HAWAII, INC.

By ___________________________                  By ___________________________

[Signature]

MAUNA LANI RESORT, INC.                     WAIKOLOA LAND COMPANY

By ___________________________                  By ___________________________

[Signature]

[Signature]
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. 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 specific criteria. [Unless there are compelling reasons otherwise, 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

Mauna Lani Resort, Inc.
By: ________________________________
   Its

Nassay Hawaii, Inc.
By: ________________________________
   Its

Waikoloa Land Company
By: ________________________________
   Its
PART II.  (PERMANENT) PUMP INSTALLATION REPORT

20. Pump Installation Company: Roscoe Moss Hawaii, Inc.  9/11/91
21. Name of person performing work: Derrick Moreira
22. Date Pump Installation Completed: May 6, 1991
23. PUMP INSTALLATION:
   Pump Type, Make, Serial No.: Peerless Model 11MB
   Capacity: 1000 gpm
   Motor type, H.P., Voltage, rpm: Electric, 450 HP, 1800 RPM
   Depth of Pump Intake Setting: 1223.37 ft. below Pump Pad, which elevation is 1194.47 ft.
   Depth to bottom of airliner: 1199.97 ft. below Pump Pad, which elevation is 1194.47 ft.
   Pumping Head is 1200 ft. Type of flow meter: Turbine, which measures in GPM

24. As-built drawings attached? Yes  No
25. Other remarks/comments: (See below)

<table>
<thead>
<tr>
<th>Water Level</th>
<th>Depth (ft.)</th>
<th>Rock Description, Remarks,</th>
<th>Water Level</th>
<th>Depth (ft.)</th>
<th>Rock Description, Remarks,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dates</td>
<td></td>
<td></td>
<td>Dates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>____________</td>
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<td>____________</td>
<td></td>
</tr>
</tbody>
</table>

8. (cont'd) DRILLER'S LOG (cont'd):

## PART I. WELL CONSTRUCTION REPORT

3. Drilling Company:__________________________

4. Name of driller who performed work:__________________________

5. Type of rig/construction:__________________________

6. Date(s) Well Construction and pump tests (if any) completed:__________________________

7. GROUND ELEVATION (referenced to mean sea level, msl): __________ ft.
   Well Bench Mark (description/location):__________________________ Elevation (msl): __________ ft.

8. DRILLER'S LOG: Please attach geologic log (if available or if required by permit)
   Depths (ft.) Rock Description, Water Level, Dates, etc.
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   (If more space is needed, continue on back)

9. Total depth of well below ground: __________ ft.

10. Hole size:
    - ______ inch dia. from ______ to ______ ft. below ground
    - ______ inch dia. from ______ to ______ ft. below ground
    - ______ inch dia. from ______ to ______ ft. below ground

11. Casing installed:
    - ______ in. I.D. x ______ in. wall solid section to ______ ft. below ground
    - ______ in. I.D. x ______ in. wall perforated section to ______ ft. below ground
    Casing Material/Slot Size:__________________________

12. Annulus:
    - Grouted from ______ ft. below ground to ______ ft. below ground
    - Gravel packed from ______ ft. below ground to ______ ft. below ground

13. Initial water level: ______ ft. below ground. Date and time of measurement:__________________________

14. Initial chloride: ______ ppm Date and time of sampling:__________________________

15. Initial temperature: ______°F Date and time of measurement:__________________________

16. PUMPING TESTS: Reference Point (R.P.) used:__________________________ which elevation is ______ ft.
   (1) Step-Drawdown Test Date ______
   Start water level ______ ft. below R.P.
   End water level ______ ft. below R.P.
   (2) Long-term Aquifer Test Date ______
   Start water level ______ ft. below R.P.
   End water level ______ ft. below R.P.

17. Aquifer Pump Test Procedures data & graphs (1/9/96 LTAT Form) attached? __ Yes __ No

18. As-built drawings attached? __ Yes __ No

19. Other remarks/comments: ____________________________

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**Well Drilling Contractor (print)**

C-57 Lic. No.__________________________

Signature__________________________ Date__________________________

**Surveyor (print)**

Lic. No.__________________________

Signature__________________________ Date__________________________

**Applicant (print)**

Signature__________________________ Date__________________________
DEEP WELL PUMP

TOP OF PUMP BASE PAD
EL. = 1194.47
EL. = 1193.8
EL. = 1193.3

EXIST. 12" I.D.
0.375" WALL THICKNESS
STEEL CASING

1/4" DIA. SCHEDULE 40 BRASS
AIR LINE STRAPPED TO PUMP
COLUMN & S.S. STRAPS @
10'-0" O.C.

8" DIA. PUMP COLUMN

EXIST. GROUT

PRESENT STATIC
WATER EL. = 8.0'

TOP OF WELL SCREEN
EL. = 4.7'

END AIR LINE
EL. = 5.5'

BOTTOM OF PUMP BOWL
EL. = 28.9'

COVE STRAINER

BOTTOM OF EXIST. WELL SCREEN
EL. = 82.7

EXIST. 12" DIA.
UNCASED SECTION

BOTTOM OF EXIST. WELL
EL. = 121.7

PEERLESS MODEL 11MB
24 STAGE

PUMP INSTALLATION AS-BUILT
WAIKOLOA POTABLE WELL NO. 2
5548 - 01
DATE: Sept 9, 1996

TO: Department of Land and Natural Resources
Commission on Water Resource Management
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

ATTENTION: Roy Hardy

SUBJECT: Waikoloa Wells - Misc Information

We herewith transmit the following:

1. Well Completion Report for Waikoloa Well No. 2, & As-built Pump Section
1. DOH Engineering Report for Waikoloa Well No. 1, July 1989
1. DOH Engineering Report for Waikoloa Well No. 3, Nov 1992

Remarks:

We herewith transmit the above documents for your use.

Please feel free to call the undersigned if there are any questions regarding this matter.

Sincerely,
Tom Nance Water Resource Engineering

Greg Fukumitsu

cc: Dennis Sturdavant - Waikoloa Water Company (trans only)
TO: Commission on Water Resource Management  
ATTENTION: Roy Hardy  
FROM: Greg Fukumitsu  
DATE: August 27, 1996  
SUBJECT: Waikoloa Well No. 2 - Pump Installation Date  
No. of Pages (including header): 2  

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE TELEPHONE OR FAX IMMEDIATELY.  

Attached is a confirmation Memo which has been corrected. I sent you one which was dated wrong, please throw that memo away and replace it the attached memo. A hard copy will be sent to you later.
TO: West Hawaii Water Company

ATTENTION: Steven Green

FROM: Greg Fukumitsu

SUBJECT: Waikoloa Well No.2 - Pump Installation Completion Date

Confirmation per telephone conversation regarding the date on which Waikoloa Well No. 2's pump unit was installed and made operational. Per their records the well pump was operational on May 6, 1991.
TO: West Hawaii Water Company

ATTENTION: Steven Green

FROM: Greg Fukumitsu

SUBJECT: Waikoloa Well No.2 - Pump Installation Completion Date (Well No. 5546-01)

Confirmation per telephone conversation regarding the date on which Waikoloa Well No. 2's pump unit was installed and made operational. Per their records the well pump was operational on May 27, 1996.
As-Built Dimensions and Construction Details of Waikoloa Well Nos. 2 & 3

Notes:
2. Perforated casing is 16-inch (ID), 5/16" wall thickness (ASTM A-53). Openings are louvre type with 1/4-inch openings with 102 sq. in. of open area per linear foot of casing.
Table 1

As-Built Dimensions of the Waikoloa Water System Wells

<table>
<thead>
<tr>
<th>Identifying Well Number</th>
<th>Waikoloa Water Well No. 2</th>
<th>Waikoloa Water Well No. 1</th>
<th>Parker 4</th>
<th>Parker 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying Name</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ground Elevation (FT)</td>
<td>1193</td>
<td>1196</td>
<td>1203</td>
<td>1207</td>
</tr>
<tr>
<td>Nominal Casing Diameter (IN)</td>
<td>16</td>
<td>16</td>
<td>12</td>
<td>12</td>
</tr>
<tr>
<td>Total Well Depth (FT)</td>
<td>1317</td>
<td>1330</td>
<td>1231</td>
<td>1242</td>
</tr>
<tr>
<td>Length of Solid Casing (FT)</td>
<td>1198</td>
<td>1195</td>
<td>1192</td>
<td>1189</td>
</tr>
<tr>
<td>Length of Perforated Casing (FT)</td>
<td>78</td>
<td>80</td>
<td>39</td>
<td>38</td>
</tr>
<tr>
<td>Length of Open Hole Below Casing (FT)</td>
<td>41</td>
<td>55</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Elevation of Bottom of Hole (FT-MSL)</td>
<td>-124</td>
<td>-134</td>
<td>-28</td>
<td>-35</td>
</tr>
<tr>
<td>Still Water Level (FT-MSL)</td>
<td>8</td>
<td>17</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Representative Chloride Content (MGL)</td>
<td>70</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Pump Test Flow Rate and Drawdown (FT @ GPM)</td>
<td>20.5 @ 1000</td>
<td>1.3 @ 1500</td>
<td>5.0 @ 660</td>
<td>8.5 @ 660</td>
</tr>
</tbody>
</table>
DATE: August 22, 1996

TO: Department of Land and Natural Resources
Commission on Water Resource Management
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

ATTENTION: Roy Hardy

SUBJECT: Waikoloa Wells - Misc Information

We herewith transmit the following:

1 copy Letter from West Hawaii Water Company (Waikoloa) regarding status on Waikoloa Test Well (State No. 5445-01)

1 copy As Built information for Waikoloa Wells 1 & 2, Parker Wells 4 & 5

1 copy As Built Well & Pump Section for Waikoloa Well No. 1

1 copy Memo with West Hawaii Water Company on Waikoloa Well No. 2 Outfitting

Remarks:

We herewith transmit the above documents for your use.

Please feel free to call the undersigned if there are any questions regarding this matter.

Sincerely,
Tom Nance Water Resource Engineering

Greg Fukumitsu

cc: Dennis Sturdavant - Waikoloa Water Company
Mr. Stephen Hicks  
General Manager  
Waikoloa Water Company  
P. O. Box 3028  
Waikoloa, HI 96743  

Dear Mr. Hicks:

SUBJECT: WAIKOLOA WELL NO. 2 - #5546-01 - NEW POTABLE WATER SOURCE

We have reviewed the preliminary engineering report for the Waikoloa Well No. 2 prepared by Water Resources Engineering. The Department of Health hereby grants conditional approval for the use of the well as a drinking water source on the following conditions:

1. The Waikoloa Well No. 2 shall deliver potable water of the quality in compliance with Hawaii Administrative Rules, Title 11, Chapter 20, Potable Water Systems. The water quality shall be subject to verification by the Department of Health.

2. The Waikoloa Water Company, in its operation of the Well No. 5546-01, shall comply with all other relevant provisions of Hawaii Administrative Rules, Title 11, Chapter 20, Potable Water Systems.

3. Waikoloa Water Company shall notify the Department of Health of any condition which may arise or be revealed that may contaminate the source and pose a threat to human health.

The Department of Health reserves the right to suspend or revoke this conditional approval upon either a finding of violation on any of the above conditions or a determination of a threat to public health from factors which may arise in the future. Thank you for your attention and concern to these matters.

Very truly yours,

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

Enclosure: Chapter 20

✓ c: Edwin Sakoda, DLNR
SS4L-01
Waikoloa Water Well No. 2
Step-Drawdown Test of February 19, 1990
DECEMBER 16, 1971

Drawdown (Feet)

D = 5.99 x 10^-3 Q + 1.45 x 10^-5 Q^2
(r^2 = 0.998)

Flowrate (GPM)
Week: 2
Well: #2

Pump Test Results
Week of 2/5/90

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>GPM</th>
<th>mg/l Chlides</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/5</td>
<td>8:40 A</td>
<td>440</td>
<td>80</td>
</tr>
<tr>
<td>2/5</td>
<td>2:00 P</td>
<td>14.96</td>
<td>70</td>
</tr>
<tr>
<td>2/5</td>
<td>6:00 P</td>
<td>14.96</td>
<td>70</td>
</tr>
<tr>
<td>2/6</td>
<td>6:00 A</td>
<td>1500</td>
<td>70</td>
</tr>
<tr>
<td>2/7</td>
<td>6:00 A</td>
<td>75</td>
<td>75</td>
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<tr>
<td>2/7</td>
<td>6:00 P</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td>2/8</td>
<td>6:00 A</td>
<td></td>
<td>70</td>
</tr>
</tbody>
</table>

* Approx. ± 2 gpm

Please advise re: required information, please. Samples @ conclusion of test on Friday 2/9/90.
PUMP TEST RESULTS
FEB 16 to '19, 1990 (LST Run using Waikoloa's engine...)

Static now 16.7 psi

<table>
<thead>
<tr>
<th>FLOWRATE (GPM)</th>
<th>AIRLINE (PSI)</th>
<th>DRAWDOWN (PSI)</th>
<th>DRAWDOWN (FEET)</th>
<th>D/Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>1329</td>
<td>1.9</td>
<td>14.8</td>
<td>34.2</td>
<td>.0255</td>
</tr>
<tr>
<td>1113</td>
<td>6.2</td>
<td>10.5</td>
<td>24.3</td>
<td>.0218</td>
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<td>912</td>
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<td>7.5</td>
<td>17.3</td>
<td>.0190</td>
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<td>820</td>
<td>10.4</td>
<td>6.3</td>
<td>14.6</td>
<td>.0178</td>
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<td>1210</td>
<td>4.3</td>
<td>12.4</td>
<td>28.6</td>
<td>.0236</td>
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<td>652</td>
<td>12.3</td>
<td>4.4</td>
<td>10.2</td>
<td>.0156</td>
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<tr>
<td>561</td>
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<td>3.5</td>
<td>8.1</td>
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</tr>
<tr>
<td>297</td>
<td>15.4</td>
<td>1.3</td>
<td>3.0</td>
<td>.0101</td>
</tr>
</tbody>
</table>

• Assume \( D = AQ + BQ^2 \) where drawdown is comprised of linear and 2nd power components.
• Dividing by \( Q \): \( D/Q = A + BQ \)
• Run a linear regression to determine the values of \( A \) & \( B \)

\( A = 5.988 \times 10^{-3} \)
\( B = 1.447 \times 10^{-5} \)
\( r^2 = 0.598 \)

\[ D = 5.988 \times 10^{-3} Q + 1.447 \times 10^{-5} Q^2 \]
TO: Waikoloa Resort Utility Co.  
ATTENTION: Steve Hicks  
FROM: Elton Saito  
DATE: December 17, 1991  
SUBJECT: Waikoloa Well No.2  

No. of Pages (including header): 2

IF YOU DO NOT RECEIVE ALL PAGES, PLEASE TELEPHONE OR FAX IMMEDIATELY.

Ref: Step Drawdown Test of December 16, 1991 for Well No.2

<table>
<thead>
<tr>
<th>GPM</th>
<th>PSI</th>
<th>DRAWDOWN (ft)</th>
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<tbody>
<tr>
<td>STATIC</td>
<td>13.30</td>
<td></td>
</tr>
<tr>
<td>617</td>
<td>11.05</td>
<td>5.20</td>
</tr>
<tr>
<td>710</td>
<td>10.60</td>
<td>6.2</td>
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<tr>
<td>883</td>
<td>9.30</td>
<td>9.24</td>
</tr>
<tr>
<td>1000</td>
<td>8.70</td>
<td>10.63</td>
</tr>
</tbody>
</table>
DATE: Sept 28, 1996

TO: Department of Land and Natural Resources
Commission on Water Resource Management
State of Hawaii
P.O. Box 621
Honolulu, Hawaii 96809

ATTENTION: Glen Bauer

SUBJECT: Waikoloa Wells - Misc Information

We herewith transmit the following:

1 copy Original Pump Test Data for Waikoloa Well Nos. 2 & 3

Remarks:

We herewith transmit the above documents for your use.

Please feel free to call the undersigned if there are any questions regarding this matter.

Sincerely,
Tom Nance Water Resource Engineering

Greg Fukumitsu

cc: Dennis Sturdavant - Waikoloa Water Company (trans only)
PUMP INSTALLATION PERMIT

for

Waikoloa Well 2
Well No. 5546-01
Waikoloa, Hawaii

TO: Waikoloa Water Company
    HCO2 Box 5050
    Wa’koloa, HI 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 install a 1000 gallons per minute pump in Waikoloa Well 2 (Well No. 5546-01) within Tax Map Key: 6-8-02:17, for municipal use, is approved subject to the following conditions:

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

2. The proposed pump installation 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 and pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

3. The permit shall be for installation of a 1000 gpm capacity pump in the well.

4. 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.
5. 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 installed pump.

6. The applicant shall comply with all applicable laws, rules, and ordinances.

7. The 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 proposed in the permit application shall be completed within 24 months from the date of permit issuance.

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

Date of Issuance

cc: USGS
   Department of Health
      Safe Drinking Water Branch
      Ground Water Protection Program
   Hawaii Department of Water Supply
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Oahu

Gentlemen:

Waikoloa Water Company
Application for a Pump Installation Permit
Waikoloa Well 2, Waikoloa, Hawaii

Applicant: Waikoloa Water Company
Landowner: Waikoloa Land & Cattle Co.
HC02 Box 5050
Waikoloa, HI 96743

Action Requested: Permission to install a 1000 gallons per minute (gpm) pump in Waikoloa Well 2 (Well No. 5546-01), for municipal use. Proposed amount of use is 1.44 million gallons per day (mgd).

Well location: The well is located in Waikoloa, South Kohala at Tax Map Key: 6-8-02: 17 (see attached map).

Well Description:

- Ground elevation: 1,193 ft.
- Casing diameter: 16 inches
- Solid casing depth: 1,198 ft.
- Perforated casing depth: 1,276
- Total depth: 1,317 ft.
- Proposed pump capacity: 1000 gpm
- Pump type: Vertical Turbine
- Motor: Electric

Agency Review: The application has been sent to the Hawaii Departments of Water Supply and Public Works, the State Historic Preservation Division, the Office of Hawaiian Affairs, and the State Departments of Health and Hawaiian Home Lands, for review. There have been no objections to the project.

Analysis: The Commission approved the well construction permit in May 1989. The well was completed in December 1989. The well develops a fresh (70 mg/l chlorides) basal water source. No adverse impacts are expected.

RECOMMENDATION:

That the Commission approve the issuance of a pump installation permit for Waikoloa Well 2, subject to the following conditions:
Chairperson and Members
Commission on Water Resource Management

August 14, 1991

1. The Division of Water Resource Management (DWRM) shall be notified before work commences.

2. The proposed pump installation 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 and pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

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   b. As-built sectional drawing of the installed pump.

6. The applicant shall comply with all applicable laws, rules, and ordinances.

7. The 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 proposed in the permit application shall be completed within 24 months from the date of permit issuance.

Respectfully submitted,

[Signature]

KAZUO G. AKITA
Manager-Chief Engineer

Attach.

APPROVED FOR SUBMITTAL:

WILLIAM W. PATY, Chairperson
Mr. Manabu Tagomori  
Commission on Water Resource Management  
Department of Land & Natural Resources  
State of Hawaii  
P. O. Box 373  
Honolulu, Hawaii 96809  

Dear Manabu:

Pump Installation and  
Well Construction Permit Applications for  
Waikoloa, South Kohala, Hawaii

Enclosed are two permit applications submitted on behalf of Waikoloa Resort Utilities. One of these is to install a pump in Waikoloa Well No. 2 (State No. 5546-01). A $25.00 filing fee is included for this permit. The other is a resubmittal of a permit to drill a test hole at elevation 1370 feet at a location just south of Waikoloa Road and 5000 feet east of the Puu Hinai cinder cone. The test well would be undertaken to find out if potable quality water can be developed at this location. If this is determined to be the case, the upper 200 feet of the well would be reamed to a depth of 200 feet so that a 22-inch pipe can be installed and grouted into place to seal the well. The well would be fully developed at a later time as dictated by the pace of development at Waikoloa.

Several other items need to be brought to your attention as a matter of record keeping. Waikoloa has previously obtained a permit for State Well No. 544-01 located between the proposed test hole and Puu Hinai cinder cone. Waikoloa has decided not to drill this well so it should be removed from your records. A permit has also been obtained for Waikoloa Well No. 3 (State No. 5546-02) but several of its details need to be corrected. We intend to use 16-inch casing rather than the 14-inch casing stated on our permit application. If results are satisfactory, a 1000 GPM pump will be installed. Its draft rate would be up to 1.44 MGD, rather than the 1.0 MGD rate shown on the permit application. The well will also be very close to Waikoloa's property boundary with the Waikoloa Village Association. When its exact location relative to this boundary has been determined by a surveyor, you will be apprised if a change in landowner is necessary.

If you have any questions or require additional information, please contact me or Steve Hicks at 885-1000. Thank you for your attention to this matter.

Sincerely,

Tom Nance

TN:It
cc: Steve Hicks
Enclosures
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 373, 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 548-7543, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key 6-8-02:17
Address Waikoloa, South Kohala, Waikoloa Well No. 2 (State Well No. 5546-01)
(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 Water Company Inc.
Contact Person Carl Cordes
Address HCO2 Box 5050
Waikoloa, Hawaii 96743
Phone 885-1000

3. PROPOSED CONTRACTOR FOR:

Name Roscoe Moss Company
Address 830 Ahua Street
Honolulu, Hawaii 96819
Phone 839-6888

4. PROPOSED WORK

☐ Drill New Well ☐ Deepen ☐ Alter ☐ Seal ☐ Redrill
☐ Install New Pump ☐ 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) ☐ Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL 1.44 million gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible ☐ Centrifugal
☐ Diesel ☐ Gas ☐ Electric: 450
Rated Pump Capacity 1,000 gallons per minute (gpm)

Well Owner (print) Carl Cordes
Signature Date 8/11/97

Landowner (print) Tom Rohr
Signature Date 8/11/97

For Official Use Only:
Field Checked By Latitude Hydrologic Unit
Date Longitude State Well No.
Briefly describe the proposed work:

Potable water well source to be added to Waikoloa existing water system.

PROPOSED SECTION OF WELL

Elevation at top of casing _______ ft., msl.

Cement Grout 600 ft.

Hole Dia. 20 in.

Total Depth 1317 ft.

Rock Packing 676 ft.

Ground Elev. 1193.3 ft., msl*

Solid Casing:
Material ASTM A-283 Steel Casing
Length 1198 ft.
Diameter 16 ID in.
Wall thickness 3/8 in.

Casing: /X/Perforated / /Screen
Material Same
Length 78 ft.
Diameter 16 ID in.
Wall thickness 5/16 in.
Openings sq. in./L.F.

Open Hole:
Length 41 Feet
Diameter 13 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.
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**Pump Installation Permit**

**Waikoloa Well No. 2 (Well No. 5546-01)**

---

**CHECK**

**DATE**

**CHECK NO.**

**TOTALS**

25.00

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

---

**NAIKOLOA WATER COMPANY**

P. O. BOX 3028

WAIKOLOA, HAWAII 96743

---

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

**DATE**

**CHECK NO.**

2972

**AMOUNT**

$25.00

**PAY TO THE ORDER OF**

**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**WAIKOLOA WATER COMPANY**

---

**KAMUELA BRANCH**

FIRST HAWAIIAN BANK

KAMUELA, HAWAII

---

**2972**
Mr. William W. Paty  
Chairman of the Board  
Department of Land & Natural Resources  
1151 Punchbowl Street  
Honolulu, HI 96813

Dear Mr. Paty:

**SUBJECT: PRELIMINARY ENGINEERING REPORT FOR WAIKOLOA WATER WELL NO. 2 (#5546-01)**

Transmitted herewith for your review and comments is a copy of the preliminary engineering report for the Waikoloa Water Well No. 2 (#5546-01). This report has been prepared pursuant to Section 11-20-29, Chapter 20, Title 11, Administrative Rules, Potable Water Systems.

Your review and comments are solicited as your concerns, knowledge and expertise in this area may assist us in determining potential impacts which may result by the proposed project.

Your early attention and reply to this matter will be greatly appreciated. Please respond by July 31, 1990.

Please return the preliminary engineering report with your comments.

Very truly yours,

John C. Lewin, M.D.
Director of Health

Enclosure
Waikoloa Water Well No. 2 (5946-02)
As-Built Section

Top of Casing = 1195', MSL
Finish Ground = 1193.3', MSL

600' Cement Grout

590' Course Aggregate

90' Gravel Pack

1198'
16'' Solid Casing

Static Water Level
+8', MSL

78'
16'' Perforated Casing

41', Open Hole
13'' Diameter

NDIC: FROM ENGINEERING KPT
MAY 1990
DESCRIPTION

Date of report April 2, 1990
Person filing report Kathy Watanabe

A. OWNER Waikoloa Water Co. WELL NAME Waikoloa Water Well No. 2 ISLAND S. Kona, Hawaii
B. GENERAL LOCATION Waikoloa, South Kohala District
C. DRILLING COMPANY Water Resources International, Inc.
D. TYPE OF RIG Rotary DRILLING COMPLETED 12/89 DRILLER Sidney Consolvas
E. ELEVATION, msl: Top of drilling platform 1220 ft. Bench mark and method used to determine Height of drilling platform above ground surface 10 ft. elevation: 1210 ft.
F. HOLE SIZE: 9 7/8 inch dia. to 100 ft. below drilling platform.
...... 2 1/4 inch dia. to 1300 ft. below drilling platform.
...... 1 inch dia. to 1219 ft. below drilling platform.
G. CASING INSTALLED: 2 1/2 in. I.D. x 3 7/8 in. wall solid section to 216 ft. below drilling platform.
...... 2 1/4 in. I.D. x 5 1/4 in. wall perforated section to 1297 ft. below drilling platform.
Type of perforation full-flow
H. ANNULUS: Grouted 664 ft. to 10 ft. below drilling platform.
Gravel packed 664 ft. to 1297 ft. below drilling platform.

I. PERMANENT PUMP INSTALLATION:
   - Pump type, make, serial no. Capacity g.p.m.
   - Motor type, H.P., voltage, r.p.m.
   - Depth of pump intake setting ft. below which elevation is ft.
   - Depth of bottom of airline ft. below which elevation is ft.

HYDROLOGY

J. INITIAL WATER LEVEL 1192 ft. below drilling platform. Date of measurement August 31, 1989
K. INITIAL CHLORIDE: ppm, total depth of well ft. below drilling platform

L. PUMPING TESTS: Reference point (R.P.) used: which elevation is 1220 ft.
   Date February 15, 1990
   Start water level ft. below R. P. End water level ft. below R. P.
   Depth of well ft. below R. P.
   Elapsed Time (hours) Rate Draw- Temp.
   Elapsed Time (hours) Rate Draw- Temp.
   2/15/90 to 1030 to 2200 1285 35 34
   2/16/90 to 2400 to 2300 1307 33 95
   2/17/90 to 2400 to 2300 1307 33 95
   2/18/90 to 1428 to 1622 Step Test

SUBSURFACE FORMATION

M. DRILLER'S LOG:
   Depth, ft. Rock Description & Remarks Water Level Depth, ft. Rock Description & Remarks Water Level
   0 to 40 Lava rock & clay fines ft. 1205 to .1260 Hard rock w/decomposed stringers
   40 to 70 Med. hard lava rock to
   70 to 100 Hard rock to
   100 to 140 Hard rock to
   140 to 170 Med. hard rock to
   170 to 280 Semi-hard w/decomposed stringers to
   280 to 584 Decomposed rock to
   584 to 796 Hard rock to
   796 to 1125 Decomposed rock to
   1125 to 1205 Med. hard rock to

N. REMARKS:

INSTRUCTIONS: Send three (3) copies to: Manager-Chief Engineer, Division of Water and Land Development, P. O. Box 373, Honolulu, Hawaii 96809.

FOR OFFICIAL USE
Latitude 19° 55.41',
Longitude 155° 46.26',
Well No. 554-6-01

FOR DRILLER'S USE
Job Name
Job No.
### Long-Term Pump Test - Waikoloa Well No. 2

February 15 to 19, 1990

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Long-Term Pump Test - Walkoloa Well No. 2

February 15 to 19, 1990
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WAIKOLOA OPEN 10,000 AC

DESTINATION RESORT COMMUNITY
South Kohala, Island of Hawaii
May 18, 1989

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 APPLICATIONS
WAIKOLOA WELLS
STATE WELL NOS. 5446-01 AND 5546-01
WAIKOLOA, HAWAII

Thank you for the opportunity to review the subject documents. We have reviewed the applications and have the following comments to offer:

1. Both permit applications indicate that in addition to golf course irrigation, these wells will be for municipal (including hotels, stores, etc.) use. If either well is to serve 25 or more individuals at least 60 days per year or will have a minimum of 15 service connections, the applicant will be required to comply with the Department's Administrative Rules, Title 11, Chapter 20, "Potable Water Systems."

2. Section 11-20-29 of Chapter 20 requires that a new source of potable water serving public water systems be approved by the Director of Health prior to its use. Such an approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

If you should have any questions, please contact the Drinking Water Program at 548-2235.

Very truly yours,

John C. Lewin, M.D.
Director of Health
TO: Waikoloa Water Co.
P.O. Box 3028
Waikoloa, 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. 5546-01 for municipal use and golf course irrigation within Tax Map Key: 6-8-02:17 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 following shall be submitted to DOWALD, P.O. Box 373, Honolulu, Hawaii 96809 within 30 days after completion of the well:
   a. Well Completion Report.
   b. Ground elevation (referenced to mean sea level) determined by 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.
4. The applicant shall comply with all other applicable laws, rules, and ordinances.

5. 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.

MAY 25 1989
Date of Issuance

cc: USGS
Department of Health
   Drinking Water Program
   Ground Water Protection Program
   Hawaii Department of Water Supply
May 8, 1989

MR MANABU TAGOMORI
DEPUTY DIRECTOR
DEPT OF LAND & NATURAL RESOURCES
P O BOX 621
HONOLULU HI 96809

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATION
Waikoloa Well (State Well No. 5446-01)
Waikoloa Well (State Well No. 5546-01)
Kawaihae Exploratory Well (State Well No. 6448-01)

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

ROBERT K. YANABU, Division Chief
Engineering Division

STT:jjs
May 2, 1989

Mr. Manabu Tagomori  
Deputy Director  
Commission on Water Resource Management  
State of Hawaii  
P. O. Box 621  
Honolulu, HI 96809

WELL CONSTRUCTION PERMIT APPLICATIONS  
WAIKOLOA WELL (STATE WELL NO. 5446-01)  
WAIKOLOA WELL (STATE WELL NO. 5546-01)  
KAWAIHAE EXPLORATORY WELL (STATE WELL NO. 6448-01)

The proposed well sites are not in close proximity to our existing Lalamilo Well Field. Therefore, we do not anticipate any adverse impact on our existing well field.

We have no objections to the subject well permit applications.

H. William Sewake  
Manager  
GK
May 15, 1989

Waikoloa Water Co.
P.O. Box 3028
Waikoloa, Hawaii 96743

Gentlemen:

The Commission on Water Resource Management will be acting upon your application for well construction permits for Waikoloa Wells 2 and 3 (5546-01 and 5446-01) at its meeting on May 17, 1989, at 2:00 p.m., in the Board Room 132, 1151 Punchbowl Street, Honolulu. Your application will be included on the agenda as Item 7 (attached).

You, or your representative, are invited to attend the meeting.

Sincerely,

MANABU TACOMORI
Deputy Director

Enc.
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 Application

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 application:

- Waikolou Well (State Well No. 5446-01)
- Waikoloa Well (State Well No. 5546-01)
- Kawaihae Exploratory Well (State Well No. 6448-01)

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 Manabu Tagomori at 548-7533.

Very truly yours,

WILLIAM W. PATY

MT:ES:ko
Enc.
April 21, 1989

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

Dear Mr. Sewake:

Well Construction Permit Application

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

Waikoloa Well (State Well No. 5446-01)
Waikoloa Well (State Well No. 5546-01)
Kawaihae Exploratory Well (State Well No. 6448-01)

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

Enc.
April 21, 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 Application

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

- Waikoloa Well (State Well No. 5446-01)
- Waikoloa Well (State Well No. 5546-01)
- Kawaihae Exploratory Well (State Well No. 6448-01)

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:ko  
Enc.
April 21, 1989

Waikoloa Water Co.
P.O. Box 3028
Waikoloa, Hawaii 96743

Gentlemen:

We acknowledge receipt of your applications and filing fees to drill two wells (State Well Nos. 5446-01 and 5546-01) at Waikoloa.

My staff is reviewing the applications and will contact you should there be any questions.

Sincerely,

MANABU TAGOMORI
Deputy Director

ES:ko
CONFIDENTIAL

FROM: ____________________________ DATE: 3/31/89
TO: INITIAL: ____________________________

PLEASE:

__ See Me
__ Take Action By
__ Route to Your Branch
__ Review & Comment
__ Draft Reply
__ Acknowledge Receipt
__ Xerox ______ copies
__ File
__ Mail
__ For Information

REMARKS:

Need to review within week

Workshop Staff Note
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 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 548-7741, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key 6-8-002-017 (Lot 7)
Address File Plan 1172 Lot 7 Waikoloa
(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 Water Co.
Contact Person Bob Diffley
Address P. O. Box 3028
Waikoloa, HI 96743
Phone 883-9677

LANDOWNER

Firm Name AtPac Land Co.
Contact Person Bob Diffley
Address P. O. Box 3028
Waikoloa, HI 96743
Phone 883-9677

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

Name To Be Selected Phone ___________

Address ___________________________ Contractor's License No. __________________

4. PROPOSED WORK

☑ 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, noncommercial water systems) ☑ Industrial
☐ Irrigation (specify) Golf Course ☑ Other (specify) __________________

6. PROPOSED AMOUNT OF WITHDRAWAL 2 Million gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☑ Vertical Turbine ☑ Submersible ☑ Centrifugal
Motor: ☐ Diesel ☐ Gas ☑ Electric: 700 Rated Horsepower
Rated Pump Capacity 1500 gallons per minute (gpm)

Well Owner (print) Waikoloa Water Co. Landowner (print) AtPac Land Co.
Signature ___________________________ Signature ___________________________
Date 3/23/85 Date 3/23/85

For Official Use Only:
Field Checked By ___________________________
Latitude ___________________________
Date ___________________________
Longitude ___________________________
State Well No. 5546-01

Hydrologic Unit

State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management
Briefly describe the proposed work:

We propose to drill an exploratory well approximately 10" in diameter to a depth of 130' below sea level. We will then do a pump test to evaluate the resource. Assuming positive results, we intend to ream the hole to allow for the installation of a 16" casing and install a pump of 1500 gpm capacity.

PROPOSED SECTION OF WELL

Elevation at top of casing 1212 ft., msl.

Cement Grout 600 ft.

Hole Dia. 20 in.

Total Depth 1340 ft.

Rock Packing 700 ft.

Ground Elev. 1210 ft., msl*

Solid Casing:
Material ASTM A-283 Steel Casing
Length 1262 ft.
Diameter 16 in.
Wall thickness 3/8 in.

Casing: /X/Perforated / /Screen
Material Same
Length 80 ft.
Diameter 16 in.
Wall thickness 3/8 in.
Openings 100 sq. in./L.F.

Open Hole:
Length 50
Diameter 13" min. 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.
TO: Dan J.
DATE: 2/13
TIME: 2:10

WHILE YOU WERE OUT
Mr. Dobson
of Mr. Dobson and Company

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Message:
"Pls may we ask a rush on these - Fantastic! My command!

Operator
PAY TO THE ORDER OF Dept. of Land & Natural Resources**** $25.00****

****Twenty-five dollars and no/100****** DOLLARS

filing fee for will drilling permits (WELL 8548-01)
#001472 6123010154 04025849