CHECKLIST

WELL CONSTRUCTION PERMIT

WELL NAME or LOCATION: Waikoloa Island: Hawaii

WELL NUMBER: 5345-01 (5546-02)

OWNER/OPTERATOR:
Firm Name: Waikoloa Water Company
Contact Person: Steve Hicks
Address: P.O. Box 3028 Kamuela, Hawaii 96743
Phone: 885-1800

LANDOWNER:
Firm Name: Waikoloa Land Company
Contact Person: Carl Codis
Address: HCO2 Box 5050
Phone: 885-1800

Date application received: 11-14-90
Date acknowledged receipt/request more info: 
Date application accepted: 
Suspense date (90 days): 
Date filing fee deposited: 1-50-92

Application sent to following:

✓ Dept. of Health
✓ Dept. of Hawaiian Home Lands
✓ Dept/Bd of Water Supply
✓ Historic Preserv. Prog.
✓ Keolaulea #28 (Oahu)
✓ Dept/Pub. Wrs (Hawaii)
✓ Office of Hawaiian Affairs

Comments received: 1-23-91, 1-17-91, 1-30-91, 1-25-91

Date agenda due: 
Date submittal due: 
Date submittal sent to applicant: 

Date application approved or disapproved: 
Date applicant notified of decision: 

REMARKS:
10/3/90 - Need to log in Company and Major Log, Need Guest Map
Exhibit 1

PORTION OF PUU HINAI QUADRANGLE

SCALE: 1" = 2000'

WAIKOLOA WELL NO. 3
(State Well No. 5546-02)

WAIKOLOA WELL NO. 2
(State Well No. 5546-01)

radius = 1 mile
Facsimile Header

To: ROY HARDY - CWRM
From: Tom Nance
Subject: SOUTH KOREAN WATER WELD WREAP

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 406 • 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 member 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 KEEA PROPERTIES, INC. NANSAY HAWAII, INC.

By Its

By Its

MAUNA LANI RESORT, INC. WAIKOLOA LAND COMPANY

By Its

By Its
DRAFT
Water Commitment Policies and Procedures
of the
South Kohala Water Users' Group
Revised: [February 4, 1993]
March 9, 1993

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 etc. [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 falls 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
Mr. Ken Melrose  
Waikoloa Water Company  
dba West Hawaii Water Company  
150 Waikoloa Beach Drive  
Kamuela, HI  96743  

Attn: Mr. Dennis Sturdavant  

Dear Mr. Melrose:  

Well Completion Report for Well No. 5546-02  

We have received your well completion report part II for the Waikoloa 3 Well (Well No. 5546-02). By this letter, we acknowledge that the requirements for the well completion report conditions of your permit are complete.  

We remind you that you are required to submit reports of water data monthly per Standard Condition 3 of your Pump Installation Permit.  

If you have any questions, please contact Mr. Ryan Imata of the Commission staff at 587-0255.  

Sincerely,  

RAE M. LOUI  
Deputy Director  

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

JOB #:  
RE: Waikoloa Well No. 3  
State Well No. 5546-02

GENTLEMEN:

WE ARE SENDING YOU [X] ATTACHED  
UNDER SEPARATE COVER  
VIA:

THE FOLLOWING ITEMS:

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<th>DESCRIPTION</th>
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<td>Well Completion Report -- Part II for well Waikoloa 3; State Well No. 5546-02</td>
</tr>
</tbody>
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THESE ARE TRANSMITTED as checked below:

[ ] For Approval  
[ ] For review & comment  
[ ] For your use  
[X] As requested

REMARKS: The pumping equipment has been completed and the electrical equipment is being installed. Start-up and operation of the well is scheduled for the end of March, 1997.

C: Ken Melrose, Vice President/General Manager

SIGNED

DENNIS STURDAVANT, Chief Engineer
WELL COMPLETION REPORT

1. State Well No.: 5546-02  Well Name: Waikoloa 3  Island: Hawaii
2. Location/Address: Waikoloa, Hawaii  Tax Map Key: 6-8-002:018

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: _______ ft.
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.
   to ______  to ______
   (If more space is needed, continue on back.)
9. Total depth of well below ground: ______ ft.
10. Hole size: ______ inch dia. from ______ ft. to ______ ft. below ground
     ______ inch dia. from ______ ft. to ______ ft. below ground
     ______ inch dia. from ______ ft. 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 ___, (2) Long-term Aquifer Test Date ___,
   Start water level ______ ft. below R.P.  Start water level ______ ft. below R.P.
   End 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 attached? ___ Yes ___ No
19. Other remarks/comments: (On back of this form)

Well Drilling Contractor (print) C-57 Lic. No. _____
                                Date ______
Surveyor (print) ______  Lic. No. _____
                                Date ______
Applicant (print) ______
                                Date ______
Signature ______

PART II. (PERMANENT) PUMP INSTALLATION REPORT

20. Pump Installation Company: Roscoe Moss Hawaii, Inc.
21. Name of person performing work: Derrick Moreira
22. Date Pump Installation Completed: December 17, 1996
23. PUMP INSTALLATION:
   Pump Type, Make, Serial No.: Lineshaft/Johnston/95JG6384Z
   Capacity: 1000 gpm
   Motor type, H.P., Voltage, rpm: VHS/450/4160/1780
   Depth of Pump Intake Setting -1237 ft. below Grade, which elevation is +1218 ft.
   Depth to bottom of airline -1232 ft. below Grade, which elevation is +1218 ft.
   Pumping Head is 1282 ft. Type of flow meter: ____________ which measures in ____________
24. As-built drawings attached? X Yes _ No
25. Other remarks/comments: (See below)

Pump Installation Contractor (print) Roscoe Moss Hawaii, Inc. C-57 Lic. No. C-16437
Signature William C. Moore, Vice President
Date _
Applicant (print) West Hawaii Water Company
Signature _
Date _

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

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<th>Rock Description, Remarks</th>
<th>Water Level Dates (ft.)</th>
<th>Rock Description, Remarks</th>
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19. & 25. Remarks: UNKOLA WELL No. 3 5546-02

(See below)
**WELL COMPLETION REPORT**

**(Check Appropriate Box)**  
□ Well Construction  
□ (Permanent) Pump Installation

**Instructions:** Please print or type and submit completed report within 30 days after well completion to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 587-2252, or 1-800-468-4644 Extension 70225.

1. State Well No.: ______  
   Well Name: ______  
   Island: ______

2. Location/Address: __________________  
   Tax Map Key: ______

### 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)

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<th>Depths (ft.)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
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<tbody>
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<td>____________ to ____________</td>
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<td>____________ to ____________</td>
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<td>____________ to ____________</td>
</tr>
</tbody>
</table>

*(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 (1/96 LTAT Form) attached?  
   Yes  
   No
18. As-built drawings attached?  
   Yes  
   No
19. Other remarks/comments: ________________________

*Well Drilling Contractor (print) ____________________ C-57 Lic. No. ____________________
Signature ____________________ Date ___________

*Surveyor (print) ____________________ Lic. No. ____________________
Signature ____________________ Date ___________

*Applicant (print) ____________________
Signature ____________________ Date ___________
SURFACE DISCHARGE

16" Ø TO FACE OF FLANGE

MOTOR: MFR. TY

H.P. CY. VOLTS

R.P.M. PH. FRAME

BASE TO Ø OF DISCHARGE

DISCHARGE COMPANION FLANGE FOR

17" O.D. TOP COL. FLANGE:

16" I.D. OF WELL

O.D. OF

9 3/4 COUPLING

8" COLUMN

1 1/16 SHAFT

3" TUBE

BOWL UNIT:

JOHNSON ASSEMBLY

23 STAGE

11 1/2 O.D. OF BOWLS

SUCTION PIPE

STRAINER:

8" SIZE 8 3/4 O.D.

S+5 TYPE

PUMP RATING

G.P.M.

FT. FIELD HD.

Airline set at 1231.5" pump intake set at 1236.5"

WA. Koloa well #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.
Date: 12/17/96  Customer: Waikaloa Utility

Motor: Make/Model: ____________  HP: __  RPM: ____________

Volts: __, Phase: __, Cycle: __

Column Assy: Column Size: 8" dia., Length: 20 ft, __ in.

Water Lube: __ or Oil Lube: __

Shaft Size: 1-5/8 n. dia., Bearing Type: R.H. BEARING

Top: 1 pcs, Length (ea): 10 ft, __ in.
Intermediate: 60 pcs, Length (ea): 20 ft, __ in.
Bottom: 1 pcs, Length (ea): 10 ft, __ in.

Bowl Assy: Make/Model: Johnston pump

Shaft Size (dia): __ in.

Stages: 23/12 ft  SN: 95J66384, Mfg Date: 4/26/96

Mat'l's: Impeller: 9 IN., Bowl Shaft: ____________

Cases: 506

Air Line: Length: 20 ft, __ in., Type: PVC 1" SCH 40

Location: 5 abov. Intak

Electrical: Starter: ____________, Size: ____________

Voltage: ____________, Type: ____________

Performance: GPM: __ Flow Reading, Head: __ ft or __ psi

Type of Meter: ____________

Amps: Load-1 __, Load-2 __, Load-3 __

Volts: Load-AB __, Load-BC __, Load-CA __

Amps: No-load-1 __, No-load-2 __, No-load-3 __

Volts: No-load-AB __, No-load-BC __, No-load-CA __

Well Data: Casing ID: 16 in, Casing Length: 20 ft __ in.

Well Depth: 1268 ft __ in, Surface Plate Elev: __ ft __ in

Static Water Level Elev: 1213 ft __ in, Draw Down: __ ft __ in.
CLIENT: WAIKOLOA WATER COMPANY  
HC02 Box 5050  
Waikoloa, Hawaii 96743

SAMPLE LOCATION: Waikoloa Well #3

Date Sampled: 12/06/91  
Date Received: 12/06/91

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ND - Not Detected

ATTN: Stephen Green  
JOB NUMBER: 5857-1  
DATE: 12/30/91

Matrix: WATER  
Sample #:

Page 1 of 3

APPROVED BY: [Signature]
CLIENT: WAIKOLOA WATER COMPANY  
HC02 Box 5050  
Waikoloa, Hawaii 96743

ATTN: STEPHEN GREEN  
JOB NUMBER: 5857-2  
DATE: 12/30/91

SAMPLE LOCATION:

Date Sampled: 12/06/91  
Date Received: 12/06/91

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</tr>
<tr>
<td>Toxaphene</td>
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<tr>
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<tr>
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<tr>
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<tr>
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<td>12/09/91</td>
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<td>ND</td>
<td>0.001</td>
<td>12/09/91</td>
<td>502.2</td>
</tr>
</tbody>
</table>

ND = NOT DETECTED
CLIENT: WAIKOLOA WATER COMPANY  
HC02 Box 5050  
Waikoloa, Hawaii 96743

ATTN: Stephen Green  
JOB NUMBER: 5857-3

SAMPLE LOCATION: Waikoloa Well #3

DATE:
Lab #P1

Date Sampled: 12/06/91  
Date Received: 12/06/91

Matrix: WATER
Sample #:

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<tr>
<th>ANALYSIS</th>
<th>RESULT mg/l</th>
<th>Analysis Date</th>
<th>METHOD NUMBER</th>
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<td>28.5</td>
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<td>Silica</td>
<td>63.7</td>
<td>12/12/91</td>
<td>370.1</td>
</tr>
</tbody>
</table>

Page 3 of 3

APPROVED BY: [Signature]
TO: Mr. Michael D. Wilson, Chairperson  
State of Hawaii  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, Hawaii 96809

DATE: November 9, 1996

JOB #: RE: PUMP INSTALLATION PERMIT  
Commission on Water Resource Management  
Waikoloa 3 (Well No. 5546-02)

GENTLEMEN:

WE ARE SENDING YOU [X] ATTACHED [ ] UNDER SEPARATE COVER VIA ___________________________ THE FOLLOWING ITEMS:

<table>
<thead>
<tr>
<th># COPIES</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pump Installation Permit</td>
</tr>
</tbody>
</table>

THESE ARE TRANSMITTED as checked below:

[ ] For Approval  
[ ] For review & comment  
[ ] For your information  
[ ] For your use  
[X] As requested

REMARKS: Fully executed.

CC: KEN MELROSE, Vice President/General Manager

SIGNED  

KEN MELROSE, Vice President/General Manager
PUMP INSTALLATION PERMIT
Waikoloa 3 Well, Well No. 5546-02

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management’s Administrative Rules, Section 13-168, entitled “Water Use, Wells, and Stream Diversion Works”, this document permits the pump installation for Waikoloa 3 Well (Well No. 5546-02) at Waikoloa, Hawaii, TMK 6-8-002:018, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. The Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work covered by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The pump installation permit shall be for installation of a 1000 gpm capacity, or less, pump in the well.

3. The permittee shall provide and maintain an approved meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on a monthly basis, on forms provided by the Commission (attached).

4. The proposed use 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 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.

5. The applicant shall complete and submit as-built drawings and Part II - (Permanent) Pump Installation Report of the Well Completion Report (attached) to the Commission within thirty (30) days after completion of work.

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

7. The pump installation permit application and staff submittal approved by the Commission at its October 23, 1996 meeting are incorporated into the permit by reference.

8. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the pump installation permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

9. If the well is not to be used it must be properly capped. If the well is to be abandoned then the applicant must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

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

Date of Approval: October 23, 1996
Expiration Date: October 23, 1998

MICHAEL D. WILSON, Chairperson
Commission on Water Resource Management

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant’s Signature:__________ Date: ______________
Printed Name:__________
Firm or Title:__________

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

Attachment
C: USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Hawaii Department of Water Supply
Mr. Ken Melrose  
Waikoloa Water Company  
dba West Hawaii Water Company  
150 Waikoloa Beach Drive  
Kamuela, Hawaii 96743

Dear Mr. Melrose:

Pump Installation Permit  
Waikoloa 3 (Well No. 5546-02)

Enclosed are two (2) copies of your approved Pump Installation Permit for the captioned well(s). There are no special conditions attached to your permit.

Additionally, please let this letter serve as notice of our acceptance of your Well Completion Report - Part 1 as complete.

Please sign the permit copies and return one for our files. Also, copies of the well completion report and your water use report forms are enclosed for your use.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214 or 1-800-468-4644 extension 70214.

Aloha,

MICHAEL D. WILSON  
Chairperson

Enclosures  
c. Greg Fukumitsu, TNWRE
PUMP INSTALLATION PERMIT

Waikoloa 3 Well, Well No. 5546-02

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management’s Administrative Rules, Section 13-168, entitled “Water Use, Wells, and Stream Diversion Works”, this document permits the pump installation for Waikoloa 3 Well (Well No. 5546-02) at Waikoloa, Hawaii, TMK 6-8-002:018, subject to the following conditions:

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2. The pump installation permit shall be for installation of a 1000 gpm capacity, or less, pump in the well.

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

Date of Approval: October 23, 1996
Expiration Date: October 23, 1998

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant’s Signature: ___________________________ Date: ____________

Printed Name: ___________________________

Firm or Title: ___________________________

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

Attachment:

USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Hawaii Department of Water Supply
**WELL COMPLETION REPORT**

3/20/96 WCR Form

**PART I. WELL CONSTRUCTION REPORT**

1. **State Well No.:** 5546-02  
   **Well Name:** Waikoloa 3  
   **Island:** Hawaii

2. **Location/Address:** Waikoloa, Hawaii  
   **Tax Map Key:** 6-8-002:018

---

### 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):

Well Bench Mark (description/location): __________ ft.  
Elevation (msl): _____ ft.

### 8. DRILLER'S LOG: Please attach geologic log (if available or if required by permit)

<table>
<thead>
<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>____ to ____</td>
<td>____ to ____</td>
</tr>
<tr>
<td>____ to ____</td>
<td>____ to ____</td>
</tr>
</tbody>
</table>

(If more space is needed, continue on back.)

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

### 10. Hole size:

- __________ inch dia. from __________ ft. to __________ ft. below ground
- __________ inch dia. from __________ ft. to __________ ft. below ground
- __________ inch dia. from __________ ft. 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: (On back of this form)

Well Drilling Contractor (print) __________ C-57 Lic. No. __________

Signature __________ Date __________

Surveyor (print) __________ Lic. No. __________

Signature __________ Date __________

Applicant (print) __________

Signature __________ Date __________
PART II. (PERMANENT) PUMP INSTALLATION REPORT

20. Pump Installation Company: ____________________________________________

21. Name of person performing work: _______________________________________

22. Date Pump Installation Completed: ______________________________________

23. PUMP INSTALLATION:
   Pump Type, Make, Serial No.: ___________________________________________
   Capacity: ______ gpm
   Motor type, H.P., Voltage, rpm: ____________________________________________
   Depth of Pump Intake Setting ______ ft. below _______ ft., which elevation is _______ ft.
   Depth to bottom of airline ______ ft. below _______ ft., which elevation is _______ ft.
   Pumping Head is ______ ft. Type of flow meter: ____________________________
   which measures in ______

24. As-built drawings attached attached? _ Yes _ No

25. Other remarks/comments: (See below)

   Pump Installation Contractor (print) C-57 Lic. No. _____________________________
   Signature ____________________________ Date ___________________________

   Applicant (print) ____________________________ Date ___________________________
   Signature ____________________________ Date ___________________________

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

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

**INSTRUCTIONS:** Please TYPE OR PRINT CLEARLY. Complete this form to report total monthly ground water use, and, if required, other information from each of your well sources. Mail to: Commission on Water Resource Management, P.O. Box 621, Honolulu HI 96809. For assistance, please call (808) 587-0264.

**STATE OF HAWAII**
**COMMISSION ON WATER RESOURCE MANAGEMENT**
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**MONTHLY GROUND WATER USE REPORT**

Waikoloa Water Company dba West Hawaii Water Company  
150 Waikoloa Beach Drive  
Kamuela, Hawaii 96743

**Month of __________, 19__**

<table>
<thead>
<tr>
<th>State Well No.</th>
<th>Well Name</th>
<th>Period Begin Date (mm/dd/yy)</th>
<th>Period End Date (mm/dd/yy)</th>
<th>Quantity Pumped (gallons)</th>
<th>Method* of Measurement</th>
<th>Chloride (mg/l)</th>
<th>Temp. (°F)</th>
<th>Non-Pumping Water Level (ft. above sea level)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>5546-01</td>
<td>Waikoloa 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5546-02</td>
<td>Waikoloa 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5745-01</td>
<td>Parker 5</td>
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<td></td>
<td></td>
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<tr>
<td>5745-03</td>
<td>Waikoloa 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Flow meter, electrical consumption, weir of flume, not metered (estimated).
** Measurement should be taken while pump is NOT running just prior to a pumping cycle; if measurement is taken while pump is running, please indicate so.

Other comments or additional information (e.g. - date and method of chloride measurement; how pumpage amounts are estimated; etc...):

Submitted by (print) ____________________________  Title ____________________________
Signature ____________________________  Date ____________________________

Form mgwurf.frm (10/96)
APPLICANT:
Waikoloa Water Company
150 Waikoloa Beach Drive
Kamuela, HI 96743

LANDOWNER:
Waikoloa Village Association
P.O. Box 383910
Waikoloa, HI 96738

DESCRIPTION:
Location: (See Exhibit 1)
Dimensions: (See Exhibit 2)

BACKGROUND:
March 13, 1991, the Commission approved a well construction permit for the source.

January 27, 1992, a completed well completion report was submitted to the Commission for the source.

August 9, 1996, a pump installation permit was submitted to the Commission by Waikoloa Water Company's consultant, Tom Nance Water Resource Engineering.

WATER AVAILABILITY:
Waimea Aquifer System of the West Mauna Kea Aquifer Sector
Estimated Sustainable Yield: 54 mgd
Current Aquifer System Pumpage (12 MAV as of 9/96): 8.232 mgd
Proposed Use: 1.440 mgd, municipal

ISSUES/ANALYSIS:
Agency Review: Copies of the application were sent to the Department of Health’s Safe Drinking Water and Wastewater Branches. Additionally, notice of the application was published in the September bulletin. No comments or concerns were indicated or received by staff.

Item 3
Staff Review: The proposed work includes installation of a 1000 gpm pump. Step-down pump test data show that the well can handle this pumpage rate safely. However, a long-term pumping test under the current aquifer pump test protocol was not required by the earlier permit nor performed. This has been added as a special condition of the pump installation permit.

Another well within a mile of the proposed well which also belongs to the applicant. Results of the standard pump test should provide information to assess pumpage impacts to these other wells.

RECOMMENDATION:

A. That the Commission approve the issuance of a pump installation permit for Waikoloa 3 Well (Well No. 5546-02), subject to the standard conditions in Exhibit 3, and the following special conditions:

1. The applicant shall use Well No. 5546-01 as an observation well during the pump test for Well No. 5546-02.

2. The standard long-term continuous pump test required under well construction permit conditions shall be performed under this pump installation permit and shall be at run for a minimum of 96 hours.

Respectfully submitted,

[Signature]

RAE M. LOUI
Deputy Director

Exhibit(s):
1. (Location Map)
2. (Proposed Well Section)
3. (Standard Pump Installation Permit Conditions)
4. (Well Completion Report Form)
5. (Pump Test Procedures)
6. (Water Use Report Form)

APPROVED FOR SUBMITTAL:

[Signature]

MICHAEL D. WILSON, Chairperson
DATA SET:
WAIKO1.DAT
10/21/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Cooper-Jacob

PROJECT DATA:
test date: December 2, 1991
test well: 5546-02

TEST DATA:
Q = 1.905E+05 ft³/day
r = 1. ft
rᶜ = 0.667 ft
rʷ = 0.667 ft
b = 1504. ft

PARAMETER ESTIMATES:
T = 1.581E+06 ft²/day
S = 1.152E-16
DATA SET:
WAIKOLOA.DAT
10/21/96

AQUIFER MODEL:
Unconfined

SOLUTION METHOD:
Cooper-Jacob

PROJECT DATA:
test date: December 2, 1991
test well: 5546-02

TEST DATA:
Q = 1.905E+05 ft³/day
r = 1. ft
r_c = 0.667 ft
r_w = 0.667 ft
b = 1504. ft

PARAMETER ESTIMATES:
T = 9.003E+04 ft²/day
S = 3.508E-16

UnCorrected Drawdown (ft)

Time (d)
**STEP-DRAWDOWN ANALYSIS**

**By Glenn Bauer**

**NAME OF WELL:** Waikoloa Well 3 (5546-02)

**DATE OF TEST:** Nov. 19, 1991

**DATE OF ANALYSIS:** Sept. 17, 1996

<table>
<thead>
<tr>
<th>s (ft)</th>
<th>GPM</th>
<th>s/Q</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.1</td>
<td>615</td>
<td>0.0099</td>
</tr>
<tr>
<td>9</td>
<td>799</td>
<td>0.0113</td>
</tr>
<tr>
<td>18.4</td>
<td>1174</td>
<td>0.0157</td>
</tr>
<tr>
<td>33</td>
<td>1523</td>
<td>0.0217</td>
</tr>
</tbody>
</table>

**Regression Output:**

- Constant: 0.001289 = \( b \)
- Std Err of Y Est: 0.000916
- R Squared: 0.980057
- No. of Observations: 4
- Degrees of Freedom: 2
- X Coefficient(s): 1.3E-05 = \( c \)
- Std Err of Coef.: 1.3E-06

**Drawdown(tot) = Drawdown(aq.) + Drawdown(well)**

\[ s = bQ + cQ^2 \]

if \( Q = 1523 \text{ gpm} \)

\[ bQ = 1.963 \quad \text{calc. } s = 32.074 \text{ ft} \]

\[ cQ^2 = 30.111 \]

\[ L = 6.12 \text{ PERCENT OF HEAD LOSS = LAMINAR FLOW} \]

adjusted drawdown using \( L \)

\[ 2.02 \]

**Polubarinova-Kochina Eq.**

Adjusted "s" using constant "b"

- \( K = \frac{Q \ln(1.6L/r)}{2\pi L s} = 1499 \text{ ft/d} \)
- \( L = \text{length of open interval in well} = 79 \text{ ft} \)
- \( r = \text{radius of well in ft.} = 0.75 \text{ ft} \)
- \( s = \text{drawdown in well adjusted for well loss} = 2.020 \text{ ft} \)
- \( Q = \text{pumping rate in cu. ft./d} = 293198 \text{ cu. ft./d} \)
- \( h = \text{water level} = 7.23 \)
- \( b = \text{thickness of aquifer (41*h)} = 296 \text{ ft} \)
- \( T = \text{transmissivity} = k*b = 444435 \text{ ft}^2/\text{d} \)

**SPECIFIC CAPACITY \( Q/s = \) FOR ANY \( Q \)**

\[ Q = 1523 \text{ gpm} \]

\[ Q/s = 47 \text{ GAL/FT OF DD} \]
Tom Nance Water 
Resource Engineering

Facsimile Header

To: Glen Bauer - CWRE
From: Greg Fukumitsu
Subject: Waikoloa Well No. 3 - Pump Data - 5546-02

You're right, the graph is miss labeled - It appears to be the step test we did on Nov. 25, 1991. See attached well development data. Call me if you need hard copies of this data.

680 Ala Moana Boulevard, Suite 406 • Honolulu, Hawaii 96813-5411 • Phone: (808) 531-1141 • Fax: (808) 538-7757

Gnd = 1216.73
Dia. = 16" 
Depth = 1285'
Hd = 7.23'
'79' open (screen)
Walkover Well No. 3
Development Pumping 11-15-91

- Started on Nov. 14th with large drawdown; went all night (32°F/35°F)
- 7:00 AM Nov. 15 1100±CFT @ 14015 psi drawdown

- Below Ground Depth (@ 125ft)
  - Pump Suction 1272.4: -533.8623' sub
  - End of Airline 1255.8: -56.74846.3' sub

- Meter: 9,565,929,676 gal
  - 1260 GPM @ 3.8 psi (35.5') (41.5°F) 19.35 psi
  - 1285 GPM @ 3.5 psi (36.6') (55.1°F) static

- ART:
  925 - 4718 (Point Facebook Mobile)
  925 - 2320 (Red
  925 - 5430 Oke)

- Step drawdown, afternoon of 11-19-91

<table>
<thead>
<tr>
<th>GPM</th>
<th>Airline (PSI)</th>
<th>Drawdown (Feet)</th>
<th>D/F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Static</td>
<td>10.1</td>
<td>0.0</td>
<td>--</td>
</tr>
<tr>
<td>1523</td>
<td>4.8</td>
<td>36.4</td>
<td>0.0217</td>
</tr>
<tr>
<td>1174</td>
<td>11.15</td>
<td>19.4</td>
<td>0.0157</td>
</tr>
<tr>
<td>759</td>
<td>15.2</td>
<td>9.0</td>
<td>0.0113</td>
</tr>
<tr>
<td>615</td>
<td>16.43</td>
<td>6.1</td>
<td>0.00992</td>
</tr>
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</table>
### Results from Sat. Am, Nov. 23rd

<table>
<thead>
<tr>
<th>GPM</th>
<th>AIRLINE VWDN</th>
<th>D/Ω</th>
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</thead>
<tbody>
<tr>
<td>STATIC</td>
<td>19.80</td>
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<tr>
<td>1480</td>
<td>14.60</td>
<td>10.16</td>
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<td>7.32</td>
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<td>805</td>
<td>17.35</td>
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<td>670</td>
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<td>2.89</td>
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<td>1714</td>
<td>13.20</td>
<td>13.40</td>
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</table>

\[
\begin{align*}
\alpha &= 2.29 \times 10^{-3} \\
\beta &= 3.06 \times 10^{-6} \\
\gamma^2 &= 0.994
\end{align*}
\]

WELL GOOD continued

---

### Monday, Nov 25th (2780 PM)

<table>
<thead>
<tr>
<th>GPM</th>
<th>AIR</th>
<th>VWDN</th>
<th>D/Ω</th>
</tr>
</thead>
<tbody>
<tr>
<td>STATIC</td>
<td>19.1</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>1460</td>
<td>14.8</td>
<td>9.33</td>
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<td>1207</td>
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<td>7.16</td>
<td>(0.0583)</td>
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<tr>
<td>685</td>
<td>17.75</td>
<td>3.12</td>
<td>(0.0455)</td>
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</table>

\[
\begin{align*}
\alpha &= 2.575 \times 10^{-3} \\
\beta &= 2.769 \times 10^{-6} \\
\gamma^2 &= 0.996
\end{align*}
\]
TO: Honorable Lawrence Miike, Director
   Department of Health
   Attention: Dennis Tulang, Wastewater Branch
              William Wong, Safe Drinking Water Branch

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

SUBJECT: Pump Installation Permit Application
         Waikoloa No. 3 Well (Well No. 5546-02)

Transmitted for your review and comment is a copy of the captioned well application.

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by September 27, 1996.

Please find a map, attached, to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Roy Hardy of the Commission staff at 587-0274.

RH:ss
Attachment(s)

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

Contact Person: Keri N. Kajiwara

Signed: Keri N. Kajiwara

Phone: 586-4294
Date: 9-20-96
TO: Honorable Lawrence Miike, Director  
Department of Health  
Attention: Dennis Tulang, Wastewater Branch  
William Wong, Safe Drinking Water Branch  

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

SUBJECT: Pump Installation Permit Application  
Waikoloa No. 3 Well (Well No. 5546-02)  

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Please find a map, attached, to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Roy Hardy of the Commission staff at 587-0274.

RH:ss  
Attachment(s)  

RESPONSE: ☑ We have no comments  
( ) Comments attached  

Contact Person: William Wong  
Phone: 586-4258  

Signed: William Wong  
Date: 8/29/96
<table>
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<th>Applicant</th>
<th>Type</th>
<th>Rcvd</th>
<th>Accept</th>
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<th>WCR mgd</th>
<th>Use</th>
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<td>Waikoloa Water Company</td>
<td>WELL</td>
<td>4/17/91</td>
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<td>4/17/91</td>
<td>3/31/89</td>
<td>5/25/89</td>
<td>1.43</td>
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<td>Waik-Highland GC</td>
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<td>PUMP</td>
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<td>Waikoloa Water Co.</td>
<td>WELL</td>
<td>7/8/87</td>
<td>7/8/87</td>
<td>8/8/87</td>
<td>2.14</td>
<td>mun</td>
</tr>
</tbody>
</table>
9. PROPOSED WELL SECTION

Elevation at top of casing ________________________ ft., msl.

Ground Elevation ________________________ ft., msl

Cement Grout ________________________ ft.

Rock Pasting ________________________ ft.

Hole Diameter ________________________ in.

Total Depth ________________________ ft.

Casing: □ Perforated □ Screen
Material: Steel ASTM A53
Length: ______________ ft.
Diameter: ______________ in.
Wall thickness: ______________ in.
Openings: ______________ sq. in. A.F.

Open Hole:
Length: ________________________ ft.
Diameter: ________________________ in.

"Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.

EXHIBIT 2
STANDARD PUMP INSTALLATION PERMIT CONDITIONS

1. The Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work covered by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The pump installation permit shall be for installation of a 1,000 gpm capacity, or less, pump in the well.

3. The permittee shall provide and maintain an approved meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on a monthly basis, on forms provided by the Commission (attached).

4. The proposed use 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 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.

5. The applicant shall complete and submit as-built drawings and Part II - (Permanent) Pump Installation Report of the Well Completion Report (attached) to the Commission within thirty (30) days after completion of work.

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

7. The pump installation permit application and staff submittal approved by the Commission at its September 23, 1996 meeting are incorporated into the permit by reference.

8. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the pump installation permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

9. If the well is not to be used it must be properly capped. If the well is to be abandoned then the applicant must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

EXHIBIT 3
**WELL COMPLETION REPORT**

(Check Appropriate Box)  □ Well Construction  □ (Permanent) Pump Installation

**Instructions:** Please print or type and submit completed report within 30 days after well completion to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 587-0225, or 1-800-488-4844 Extension 70225.

1. State Well No.: ________  Well Name: ________  Island: ________
2. Location/Address: ____________________________  Tax Map Key: ________

**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)

<table>
<thead>
<tr>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
<th>Depths (ft.)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>to</td>
<td></td>
<td>to</td>
<td></td>
</tr>
</tbody>
</table>
| (If more space is needed, continue on back.)

9. Total depth of well below ground: ____________________________ ft.
10. Hole size: ____________________________ inch dia. from ____________________________ ft. to ____________________________ ft. below ground
    ____________________________ inch dia. from ____________________________ ft. 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 (1/96 LTAT Form) attached? __ Yes ____ No
18. As-built drawings attached? __ Yes ____ No
19. Other remarks/comments: (On back of this form)

**Well Drilling Contractor (print)__________________________ C-57 Lic. No. ____________
Signature ____________________________ Date ____________________________
Surveyor (print) ____________________________ Lic. No. ____________________________
Signature ____________________________ Date ____________________________
Applicant (print) ____________________________
Signature ____________________________ Date ____________________________

EXHIBIT 4
AQUIFER (PUMP) TEST PROCEDURES

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

General Recording Requirements

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

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

Step-Drawdown Test

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

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

20. Pump Installation Company:

21. Name of person performing work:

22. Date Pump Installation Completed:

23. PUMP INSTALLATION:
   Pump Type, Make, Serial No.: ____________________________ Capacity: _______ gpm
   Motor type, H.P., Voltage, rpm: __________________________
   Depth of Pump Intake Setting _______ ft. below __________, which elevation is __________ ft.
   Depth to bottom of airline _______ ft. below __________, which elevation is __________ ft.
   Pumping Head is _______ ft. Type of flow meter: __________ which measures in _______.

24. As-built drawings attached? Yes No

25. Other remarks/comments: (See below)
   Pump Installation Contractor (print) C-57 Lic. No. ________
   Signature ___________________________ Date __________
   Applicant (print) ___________________________ Date __________

8.(cont'd) DRILLER'S LOG (cont'd):
   Water Level Depth (ft.) Rock Description, Remarks, Water Level Depth (ft.) Rock Description, Remarks,
   Dates (ft.) Dates (ft.)
   ______ to ______
   ______ to ______
   ______ to ______
   ______ to ______
   ______ to ______
   ______ to ______

19. & 25. Remarks:
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________
Mr. Greg Fukumitsu  
Tom Nance Water Resource Engineering  
680 Ala Moana Blvd., Suite 406  
Honolulu, HI  96813-5411

Dear Mr. Fukumitsu:

Pump Installation Permit Application for Well No. 5546-02

We acknowledge receipt, on August 9, 1996, of the completed pump installation permit application and filing fee on behalf of Waikoloa Water Co. for the Waikoloa No. 3 Well (Well No. 5546-02). You can then expect the application to be processed within ninety (90) days from this date.

If you have any questions about your permit application, please contact Mr. Roy Hardy of the Commission staff at 587-0274.

Sincerely,

RAE M. LOUI
Deputy Director

RH:ss
TO: Honorable Lawrence Miike, Director
   Department of Health
   Attention: Dennis Tulang, Wastewater Branch
            William Wong, Safe Drinking Water Branch

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

SUBJECT: Pump Installation Permit Application
         Waikoloa No. 3 Well (Well No. 5546-02)

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RH:ss
Attachment(s)

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

Contact Person: ____________________________  Phone: ______________

Signed: ____________________________  Date: ______________
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, 1996.
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 (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 6, 1991.
<table>
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<th>CTR</th>
<th>PROJECT</th>
<th>PH ACT</th>
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<td>0752</td>
<td></td>
<td></td>
<td>(1) $25.00</td>
<td>TNWRE INC.</td>
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<td></td>
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<td></td>
<td>TOTAL $25.00</td>
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</tr>
</tbody>
</table>

REMARKS: LINE (1) Well No. 5546-02 (PIPA)
LINE (2)
LINE (3)
LINE (4)

---

---

Filing Fee: Pump Installation Permit Application
Waikoloa Well No. 3 (State No. 5546-02) $25.00
PAY $25.00 TO THE ORDER OF Department of Land & Natural Resources

DATE: 8-7-96   DESCRIPTION: Filing Fee: Pump Installation Permit Application Waikoloa Well No. 3 (State No. 5546-02)   AMOUNT: $25.00
RE: WELL NO. 3 DLNR PERMITTING

Dear Greg,

As requested the following is the status of Waikoloa Test Well 5445-01. It is on indefinite hold until the market turns around to provide lot sales in the Highland's Golf Estates subdivision. This test well is to explore water resources in a well field on the south side of Waikoloa Road that would provide potable water for future development. In early 1991 construction of this subdivision was scheduled to proceed but by late 1991 the project was put on hold due to the lack of the single family housing market in Waikoloa.

Well #3 is on the north side of Waikoloa Road and close to an existing well #2. It will be a production well that will provide needed capacity. The slow growth in the Village and Resort areas has added population thus demand requiring additional water resources.

Please advise if you need any additional information.

Truly Yours,

Dennis Sturdavant
Chief Engineer

cc: Ken Melrose

WELL (TBD): Permit Issued
9-20-91
Ms. Rae M. Loui - Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809  

August 7, 1996  

Dear Ms. Loui:

Pump Installation Permit Application  
For Waikoloa Well No. 3 (State No. 5546-02)  

On behalf of Waikoloa Water Company, I am pleased to submit the accompanying Pump Installation Permit Application and $25.00 filing fee for Waikoloa Well No. 3 (State No. 5546-02).

If you have any questions or need additional information, please call Ken Melrose (808-885-1000) or me. Thank you for your attention to this matter.

Sincerely,

Greg Fukumitsu  

cc: Dennis Sturdavant

Enclosures
APPLICATION FOR PERMIT

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

APPLICATION FOR PERMIT

Well Construction or Pump Installation

Instructions: Please print in ink or type and send completed application with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Dept. of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 587-0226.

1. APPLICANT: (circle primary contact a, b, or c) Primary Fax: 808-883-8896
   (a) WELL OWNER: Waikoloa Water Company dba West Hawaii Water Company
   Firm Name: Waikoloa Water Company dba West Hawaii Water Company
   Contact Person: Ken Melrose
   Address: 150 Waikoloa Beach Drive
   Kamuela, Hawaii 96743

   (b) LANDOWNER
   Firm Name: Waikoloa Village Association
   Contact Person: Mary Moss
   Address: P.O. Box 383910
   Waikoloa, Hawaii 96738

   (c) CONTRACTOR
   Firm Name: Roscoe Moss Hawaii, Inc.
   Contact Person: Bill Moore
   Address: 21-259A Olai Street, Waiakea, Hawaii 96707

2. WELL LOCATION/NAME: Waikoloa Well No. 3 (5546-02) Island: Hawaii Address: Waikoloa, Hawaii
   Tax Map Key: 6-8-02:18
   (Attach a USGS map, scale 1"=2000', and a property tax map showing well location referenced to established property boundaries.)

3. (a) PROPOSED WORK:
   (Briefly describe and fill in the diagram on the back of this form.)
   Drill New Well
   □ Modify Existing Well □ Redrill
   □ Abandon/Seal * □ Replace Pump
   * Be sure to complete and submit well abandonment report upon completion of work.

   (b) WELL TYPE:
   □ Dug □ Bored □ Driven □ Drilled □ Radial
   Is this well a part of a battery of wells? □ Yes □ No
   (If pump replacement, existing pump capacity: ___________ gallons per minute)

4. PROPOSED PUMP INFORMATION:
   □ Deep Well Turbine □ Rotary □ Propeller
   □ Submersible □ Rotary-Displacement □ Reciprocating
   □ Centrifugal □ Rotary-Gear □ Impulse
   If Pump Replacement, Existing Pump Capacity: ___________ gallons per minute

5. PROPOSED USE:
   □ Municipal (including hotels, stores, etc.) □ Military
   □ Domestic (individual, noncommercial water systems) □ Industrial
   □ Irrigation (crop) □ Other (explain)
   Pump Type:
   Motor:
   □ Diesel □ Gas
   □ Electric, rated horsepower: 450 HP

6. (a) PROPOSED AMOUNT OF WITHDRAWAL:
   □ 1,440,000 gallons per day
   (b) METHOD OF FLOW MEASUREMENT:
   □ Flow-meter □ Open-pipe □ Orifice Plate □ Weir

7. PENDING ACTIONS:
   □ CDUA □ SMA □ EIS □ EA □ NONE
   □ Other (explain)
   Completion Date:

8. REMARKS, EXPLANATIONS:
   Outfitting a previously drilled well and adding it to the existing Waikoloa water system.

(If more space is needed, continue on back)

Waikoloa Water Company dba West Hawaii Water Company
Well Owner: Waikoloa Water Company

Landowner: Waikoloa Village Association
Contractor: Roscoe Moss Hawaii, Inc

For Official Use Only:
Date Received ____________________________
Date Accepted ____________________________
Field Checked By ____________________________
Date ____________________________
Longitude ____________________________
Latitude ____________________________
Aquifer System Name: S02001 KAM16A
State Well No. 5546-02

11/05/95 VCFI Form
9. PROPOSED WELL SECTION

Elevation at top of casing
____ ft., msl.

Ground Elevation: 1219.1 ft., msl

Cement Grout: 1192 ft.

Rock Packing 90 ft.

Hole Diameter: 24 in.

Total Depth 1282 ft.

Solid Casing: Steel ASTM A53

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<th>Length</th>
<th>Diameter</th>
<th>Wall thickness</th>
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<td>1205 ft</td>
<td>16 in.</td>
<td>0.375 in.</td>
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Casing: □ Perforated  ■ Screen

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<th>Openings</th>
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<td>16 in.</td>
<td>0.3125 in.</td>
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Openings: 102 sq. in. A.F.

Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.
Waikoloa Well 3 (5546-02)
BM = 1219.23' (Top of Casings)
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 louver type with 1/4-inch openings with 102 sq. in. of open area per linear foot of casing.
Notes:


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

As-Built Dimensions and Construction Details of Waikoloa Well Nos. 2 & 3
LONG-TERM AQUIFER TEST DATA

Pumped Well No. ___________ Observation well no. ___________
Pumped Well Name ___________ Distance between Obs. & Pumped Well ___________ ft.
Target Q ___________ gpm Reference pt. for depth to water ___________ ft. msl
Static Water Level @ start of test ___________ ft. msl
Water level measurements by: □ steel tape □ pressure transducer □ airline

START TEST Date: ___________ Hour of day: ___________

Flow Meter Reading Start: ___________ gals

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<thead>
<tr>
<th>Suggested elapsed time (min)</th>
<th>Actual elapsed time (min)</th>
<th>Depth to water (nearest 0.01 ft)</th>
<th>Drawdown (unadjusted to nearest 0.01 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (μmhos)</th>
<th>Cl (mg/l)</th>
<th>Temp. °F °C</th>
<th>Data in this table is for: □ Pumped Well □ Observation Well Remarks</th>
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</table>
AQUIFER (PUMP) TEST PROCEDURES

3. Each pumping rate should be continued for one hour, after which the new rate should be instituted as rapidly as possible.

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

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

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

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

Long-Term Continuous Test

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

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

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

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

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

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

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

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<th>Actual elapsed time (min)</th>
<th>Depth to water (nearest 0.01 ft)</th>
<th>Drawdown (unadjusted to nearest 0.01 ft)</th>
<th>Pumping rate Q (gpm)</th>
<th>EC (micromhos)</th>
<th>CR (mg/l)</th>
<th>Temp. (°F or °C)</th>
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Max possible duration, water level or quality did not stabilize for any 24 period

Use same ending drawdown figure as start for recovery

Begin recovery data next page
Flow meter reading at end of pumped period: ______________________ gals
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<th>Actual elapsed time $t$ (min)</th>
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<th>Recovery $d$ (unadjusted to nearest 0.01 ft)</th>
<th>Pumping rate $Q$ (gpm)</th>
<th>EC (umhos)</th>
<th>$C_f$ (mg/l)</th>
<th>Temp. $^{\circ}F$ or $^{\circ}C$</th>
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Data in this table is for:
- □ Pumped Well
- □ Observation Well

END TEST Date: __________ Hour of day: __________

ADDITIONAL REMARKS:

Person in charge of pump test (print): ________________________________

Signature: ________________________________

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

CWRM LTAT Form 1/9/96
MONTHLY GROUND WATER USE REPORT

Month of ___________ 19__

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<tr>
<th>State Well No.</th>
<th>Well Name</th>
<th>Period Begin Date (mm/dd/yyyy)</th>
<th>Period End Date (mm/dd/yyyy)</th>
<th>Quantity Pumped (gallons)</th>
<th>Method of Measurement</th>
<th>Chloride (mg/l)</th>
<th>Temp. (°F)</th>
<th>Non-Pumping Water Level (ft. above sea)</th>
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INSTRUCTIONS: Please TYPE OR PRINT CLEARLY. Complete this form to report total monthly ground water use, and, if required, other information from each of your well sources. Mail to: Commission on Water Resource Management, P.O. Box 621, Honolulu Hi 96809. For assistance, please call (808) 587-0294.

* Flow meter, electrical consumption, weir of flume, not metered (estimated).

** Measurement should be taken while pump is NOT running just prior to a pumping cycle; if measurement is taken while pump is running, please indicate so.

Other comments or additional information (e.g. date and method of chloride measurement; how pumping amounts are estimated; etc...):

Submitted by (print) ________________________
Signature ____________________________________
Title ________________________________________
Date __________________________

EXHIBIT 6
ENGLAND  

**WELL COMPLETION REPORT**

**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 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-1543. Hydrology, Ecology Section for assistance.

**A. STATE WELL NO.** 5546-02  
**WELL NAME** Waikoloa Well #3  
**ISLAND** Hawaii

**B. LOCATION** Waikoloa  
**TAX MAP KEY**

**C. WELL OWNER** Waikoloa Development Co.

**D. DRILLING OR PUMP INSTALLATION CONTRACTOR** Water Resources International, Inc.

**E. TYPE OF RIG** Spencer Harris Rotary Rig  
**DRILLER** Sidney Gonsalves

**F. DATE OF WELL COMPLETION** 12/20/91  
**DATE OF PUMP INSTALLATION** na

**G. GROUND ELEVATION** (mai) 1218.50 ft.  
Top of Drilling Platform (mai) 1228.50 ft.  
Height of drilling platform above ground surface 10 ft.  
Bench mark and method used to determine ground elevation

**H. TOTAL DEPTH OF WELL BELOW GROUND** 1330' +

**I. HOLE SIZE:**
- 10 inch dia. from 0 ft. to 1330 ft. below ground
- 24 inch dia. from 0 ft. to 1285.5 ft. below ground
- 10 inch dia. from 0 ft. to 1285 ft. below ground

**J. CASING INSTALLED:**
- 16 in. I.D. x 3/8 in. wall solid section to 1205 ft. below ground
- 16 in. I.D. x 3/8 in. wall perforated section to 1285 ft. below ground

Type of perforation: Ful-Flo

**K. ANNUAL:**
- Grouted from 0 ft. to 1158 ft. below ground
- Gravel packed from 1158 ft. to 1285 ft. below ground

**L. PERMANENT PUMP INSTALLATION:**
- Pump type, make, serial No. na
- 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.

**M. PROPOSED USE**

**N. INITIAL WATER LEVEL** 1209 ft. below ground.  
**Date and time of measurement** 08/08/92

**O. INITIAL CHLORIDE** ppm.  
**Date and time of sampling**

**P. PUMPING TESTS:** Reference point (R.P.) used: which elevation is ft.

**Q. DRILLER'S LOG:**

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<tr>
<th>Depth (ft)</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level (ft)</th>
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<th>Rock Description &amp; Remarks</th>
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<td>0 to 30</td>
<td>Decomposed lava rock</td>
<td>580 to 660</td>
<td>Med. hard blue/blue lava...</td>
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<td>30 to 78</td>
<td>Hard, dense lave rock</td>
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<td>Hard, dense pahoehoe</td>
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<td>78 to 103</td>
<td>Soft, clinkery</td>
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<td>Lava tube</td>
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<td>257 to 290</td>
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<td>290 to 295</td>
<td>Inter-flow voids, rubble</td>
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<td>295 to 410</td>
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<td>1350 to 2000</td>
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REMARKS:

Submitted by (print) Blaise Clay  
Title Drilling Superintendent

Signature Blaise Clay  
Date January 22, 1992
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**Water Sample** #5
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</tbody>
</table>
FROM: Rae
DATE: 8/9/91
FOR: Approval Signature Information
PLEASE: See Me Review & Comment Take Action Type Draft Type Final File Xerox copies

8/21 - Spoke w/ 6. Fukumoto about outstanding matters
2. PI date 5546-01. - 5/18/91
3. As directed for 5745-03.
He'll get back by Friday, otherwise I will send letter requesting info. (8/23)
If I'm not mistaken, for PIP WCE, there is no requirement for test data, right? Unless special condition of the permit, I believe we did a pump test previously on 12-2-96.
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. 54401 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

680 Ala Moana Boulevard, Suite 200 • Honolulu, Hawaii 96813 • Phone: (808) 521-5361 • Fax: (808) 538-7819
Referring to Mr. Penn's question, Mr. Cox asked for clarification that the pump test data was available to the public. Mr. Penn said it was available but they didn't know when and that a notification process was needed. Mr. Cox said he could see the reason for collapsing the permits to simplify the process. Chairperson Paty said the Commission and staff would examine the process to get a better data availability system and would get back to Mr. Penn at a later date.

Mr. Fujimura asked how often test results were received. Mr. Sakoda said there is no pattern. One may come in every few weeks and at other times it comes in two or three times a week. Mr. Fujimura said a problem which should also be taken into account when the mechanism to simplify the information process is made to look at the results and realize that there is something there people would be interested in before the Chairperson gives approval. He felt the in-between process was more critical than the flagging of the data itself.

Mr. Cox stated it was an administrative matter and that the Chairperson should work it out. He felt if people let the Department know they were interested in a certain permit, staff would notify them when the results are in.

Mr. Cox recommended approval with the addition of Recommendation No. 8 and a proviso that staff look at methods to notify interested parties on pump test results.

Unanimously approved as amended (Cox/Chun).

ITEM 3
WAIKOLOA WATER COMPANY APPLICATION FOR A WELL CONSTRUCTION/PUMP INSTALLATION PERMIT, WAIKOLOA VILLAGE WELL, WAIKOLOA, HAWAII

Mr. Steve Hicks, General Manager for the Waikoloa Water Company reviewed the project and the area for the Commission. He stated that they were a private water company serving the Waikoloa area.

Unanimously approved (Nakata/Chun).

ITEMS 4-7 HUEHUE RANCH ASSOCIATES APPLICATIONS: Mr. Sakoda gave an overview of Items 4-7 and introduced Mr. Carl Carlson of Huehue Ranch and consultants Mr. Steve Bowles and Mr. Robert Akinaka who briefed the Commission on the four ranch projects.

Dr. Chun asked if by management/control of water applied to the golf course Huehue Ranch could control contaminants from migrating down to the water source. Mr. Bowles replied that as long as they are alert and are on top of it there should be no problem and do not feel there is a high risk situation. Mr. Carlson added that a consultant is developing a pesticide/herbicide plan to monitor the project.

Dr. Lewin asked how much potable water would be used in the makai portion for irrigation. Mr. Carlson said approximately 1.5 mgd was planned for residential and hotel use. Potable water is not intended for the golf course, brackish water would be used for landscaping.

Referring to the statement that Huehue Ranch was concerned about Nansay wells, Mr. Nakata asked what those concerns were. Mr. Bowles said the concerns were two-fold: (1) how it would relate to the HR2 well which they are completing now and (2) if the Nansay well is over-pumped.

Mr. Cox was concerned about the number of private developers along the coast and suggested that an organization be formed of the interested parties in the area.
WELL CONSTRUCTION/PUMP INSTALLATION PERMIT

for

Waikoloa Village Well 3
Well No. 5546-02
Waikoloa, Hawaii

TO: Waikoloa Water Company
P.O. Box 3028
Kamuela, 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 construct, test, and install a pump in Waikoloa Village Well (Well No. 5546-02) 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 permit shall be for construction, testing, and installation of a 1,000 gallons per minute capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall submit to DWRM the test results and proposed permanent pump information, based on the test, for approval by the Chairperson. No permanent pump may be installed and no water used from the well without the Chairperson's approval.

3. The proposed use 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.
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.
   
   c. Plot plan and map showing the exact location of the well.
   
   d. Complete pumping test record, including time, pumping rate, drawdown, chloride content, and water quality data.

5. 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.

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

7. 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 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

APR 2 1991
Date of Issuance

cc: USGS
   Department of Health
       Drinking Water Branch
       Ground Water Protection Program
   Hawaii Department of Water Supply
   Tom Nance, Water Resources Engineering
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Hilo, Hawaii

Gentlemen:

Waikoloa Water Company
Application for a Well Construction/
Pump Installation Permit
Waikoloa Village Well
Waikoloa, Hawaii

Applicant: Waikoloa Water Company
P.O. Box 3028
Kamuela, HI 96743

Landowner: Waikoloa Land Company
HCO2 Box 5050
Waikoloa, HI 96743

Action Requested: Permission to construct, test, and install a 1,000 gallons per minute (gpm) pump in Waikoloa Village Well (Well No. 5546-02), for municipal use. Proposed amount of use is 1.0 million gallons per day.

Well Location: The proposed well will be located at Waikoloa Village at Tax Map Key: 6-8-02:17.

Well Description:

Ground elevation: 1,200 ft.
Casing diameter: 14 inches
Solid casing depth: 1,190 ft.
Perforated casing depth: 1,270 ft.
Open hole: 20 ft.
Total depth: 1,290 ft.
Grouted annulus: 0 to 500 ft.
Pump capacity: 1,000 gpm

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

Analysis: The well should develop a fresh, basal water source. No adverse impacts are expected.

Water Availability: The well is located in the West Mauna Kea Sector, Waimea System of Hawaii. Sustainable yield is estimated at 24 mgd. Present use in the system is about 8 mgd.
Chairperson and Members  
Commission on Water Resource Management  
March 13, 1991

RECOMMENDATION:

That the Commission approve the issuance of a well construction/pump installation permit for Waikoloa Village Well, subject to the following conditions:

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

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

3. The permit shall be for construction, testing, and installation of a 1,000 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall submit to DWRM the test results and proposed permanent pump information, based on the test, for approval by the Chairperson. No permanent pump may be installed and no water used from the well without the Chairperson's approval.

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 well.

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,

KAZUO G. AKITA  
Manager-Chief Engineer

APPROVED FOR SUBMITTAL:

WILLIAM W. PATY, Chairperson
January 23, 1991

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

RE: Well Construction and Pump Installation Permit Application(s)

Dear Mr. Paty:

Thank you for the opportunity to review the following water permit applications:

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<tr>
<th>Island</th>
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<th>Well No.</th>
<th>Application Type</th>
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<tr>
<td>O'ahu</td>
<td>Barbers Pt.-Chevron</td>
<td>1907-02</td>
<td>Well &amp; Pump</td>
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<td>Maui</td>
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<td>Waikoloa Exploratory</td>
<td>5345-01</td>
<td>Well</td>
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<tr>
<td>Hawai'i</td>
<td>Mauna Lani SW Nos 1-4</td>
<td>5651-02 to 05</td>
<td>Well</td>
</tr>
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</table>

Our comments pertain to the first application, No. 1907-02. This well will be developed on the Ewa plain. There is considerable residential and commercial development under construction and planned for the future in this part of O'ahu. The allocation of water to this area has been a problem for some time. The Ewa Plain Water Development Corporation (EPWDC) has been established to research and plan for water needs on the Ewa plain. We suggest that the applicant coordinate with the EPWDC on water usage.

We have no other comments at this time.

Sincerely,

Richard Paglinawan  
Administrator

cc: Moses Keale, Chair  
Board of Trustees
January 24, 1991

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 VILLAGE WELL
STATE WELL NO. 5546-02
WAIKOLOA, HAWAII

Thank you for the opportunity to review the subject document. We have examined the application and have the following comments to offer:

1. The permit application indicates that the well will be for municipal (including hotels, stores, etc.) use. If the 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 a public water system 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.

3. The proposed well is situated above the Underground Injection Control (UIC) line. Land areas above the UIC line are considered to contain underground sources of drinking water. Thus, it is essential that the well be designed and constructed to prevent the possibility of groundwater contamination. For example, the well should have a concrete well pad and full grouting to prevent seepage or floodwaters from migrating down the well shaft.
If you should have any questions, please contact the Safe Drinking Water Branch at 543-8258.

Very truly yours,

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

cc: Steve Hicks
Waikoloa Water Company
P.O. Box 3028
Kamuela, HI 96743
January 24, 1991

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

We have reviewed the subject permit application and have no objections to the following proposed wells being constructed.

1. Waikoloa Village Well No. 5546-02
   TMK:  6-8-02: 17

2. Waikoloa Exploratory Well No. 5345-01
   TMK:  6-8-02: 16

3. Mauna Lani Salt Water Wells 1-4
   Well Nos. 5651-02 to 05
   TMK:  6-8-01: 33

ROBERT T. YANABU, Division Chief
Engineering Division

CKY:byf
Dear Mr. Paty,

Well Construction and Pump Installation Applications
Barber's Pt. Well and Pump
Puunene Well
Waikoloa Wells
Mauna Lani SW Wells 1-4

Thank you for the opportunity to comment on the following permit applications:

- Barber's Point-Chevron Well 1907-02 and Pump
- Puunene-First Assembly Well 5527-08
- Waikoloa Village Well 5546-02
- Waikoloa Exploratory Well 5345-01
- Mauna Lani SW Wells 5651-02 to 05

These do not impact Hawaiian Home Lands; we do not have comments at this time.

We look forward to understanding the results of the proposed use of the Mauna Lani Saltwater Wells. To pump 8 Mgd from an area near natural and man-made ponds, and near the the edge of a groundwater lens, may produce some interesting hydrologic effects.

Warmest aloha,

Hoaliku L. Drake, Chairman
Hawaiian Homes Commission
January 15, 1991

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

WELL CONSTRUCTION AND PUMP INSTALLATION PERMIT APPLICATIONS

WAIKOLOA VILLAGE 5546-02  
WAIKOLOA EXPLORATORY 5345-01  
MAUNA LANI SW NOS. 1-4 5651-02 TO 05

We have no objections to the subject permit applications.

[Signature]
Manager

GK

...Water brings progress...
Mr. Bruce C. McClure  
Chief Engineer  
Department of Public Works  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Dear Mr. McClure:

Well Construction and Pump Installation Permit Application(s)

Transmitted for your review and comment is a copy of the following permit application(s):

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Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, by January 25, 1991.

Should you have any questions, please contact our Regulation Branch at 548-7541.

Sincerely,

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

Dear Mr. Sewake:

Well Construction and Pump Installation Permit Application(s)

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Should you have any questions, please contact our Regulation Branch at 548-7541.

Sincerely,

[Signature]

MANABU TAGOMORI
Deputy Director

DN:bm
Enc.
MEMORANDUM

TO: Don Hibbard, Director
   Historic Preservation Program

FROM: Manabu Tagomori, Deputy Director
       Commission on Water Resource Management

SUBJECT: Well Construction and Pump Installation Permit Application(s)

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Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, by January 25, 1991.

Should you have any questions, please contact our Regulation Branch at 548-7541.

DN: bm
Enc.
Honorable John C. Lewin, M.D.
Director
Department of Health
State of Hawaii
1250 Punchbowl Street
Honolulu, Hawaii 96813

Attn: Mr. Thomas Arizumi, Drinking Water Branch

Dear Dr. Lewin:

Well Construction and Pump Installation Permit Application(s)

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<td>Well</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Mauna Lani SW Nos. 1-4</td>
<td>5651-02 to 05</td>
<td>Well</td>
</tr>
</tbody>
</table>

Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, by January 25, 1991.

Should you have any questions, please contact Manabu Tagomori, Deputy Director at 548-7533.

Very truly yours,

WILLIAM W. PATY

Enc.
Mr. Thomas K. Kaulukukui, Sr.
Chairman & Trustee-At-Large
Office of Hawaiian Affairs
1600 Kapiolani Blvd., Suite 1500
Honolulu, Hawaii 96814

Attn: Ms. Linda Delaney, Land & Natural Resources Division

Dear Mr. Kaulukukui:

Well Construction and Pump Installation Permit Application(s)

Transmitted for your review and comment is a copy of the following permit application(s):

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
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<tr>
<td>Oahu</td>
<td>Barbers Pt.-Chevron</td>
<td>1907-02</td>
<td>Well &amp; Pump</td>
</tr>
<tr>
<td>Maui</td>
<td>Puunene-First Assembly</td>
<td>5527-08</td>
<td>Well</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Waikoloa Village</td>
<td>5546-02</td>
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Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, by January 25, 1991.

Should you have any questions, please contact Manabu Tagomori, Deputy Director at 548-7533.

Very truly yours,

WILLIAM W. PATY

Enc.
Honorable Hoaliku L. Drake  
Director  
Department of Hawaiian Home Lands  
State of Hawaii  
P.O. Box 1879  
Honolulu, Hawaii 96805

Dear Mr. Drake:

Well Construction and Pump Installation Permit Application(s)

Transmitted for your review and comment is a copy of the following permit application(s):

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Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, by January 25, 1991.

Should you have any questions, please contact Manabu Tagomori, Deputy Director at 548-7533.

Very truly yours,

WILLIAM W. PATY

Enc.
November 2, 1990

State of Hawaii
Commission on Water Resource Management
Department of Land and Natural Resources
Division of Water and Land Development
P. O. Box 373
Honolulu, Hawaii 96809

Attn: Manabu Tagomori

We respectfully submit the attached applications for well construction permits in the Waikoloa area.

We trust that all necessary information is included. However, if you have any questions or comments concerning these applications, please give me a call at 885-1000 on the Big Island.

Your attention to this matter is greatly appreciated.

Sincerely,

WAIKOLOA WATER CO., INC.

Stephen D. Hicks
Vice President and
General Manager

attachments

Ken Melrose
Tom Nance w/attachments
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

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 372, Honolulu, Hawaii 96829. 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 848-3412, Hydrology/Geology Section for assistance.

1. WELL LOCATION
   Island: Hawaii       Tax Map Key: 6-8-02:17
   Address: Waikoloa Village

   (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
   Contact Person: Steve Hicks
   Address: P.O. Box 3028, Kamuela, Hawaii 96743
   Phone: 885-1000

   LANDOWNER
   Firm Name: Waikoloa Land Company
   Contact Person: Carl Cordes
   Address: HC02 Box 5050, Waikoloa, HI 96743
   Phone: (808) 885-1000

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

   Name: To Be Competitively Bid
   Phone: 
   Address: 
   Contractor's License No. 

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

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

5. PROPOSED USE
   - Municipal (including hotels, stores, etc.)
   - Military
   - Domestic (individual, noncommercial water systems)
   - Industrial
   - Irrigation (specify)
   - Other (specify) 

6. PROPOSED AMOUNT OF WITHDRAWAL: 1,000,000 gallons per day

7. PROPOSED PUMP INFORMATION
   - Pump Type: Vertical Turbine
   - Motor: Diesel
   - Rated Pump Capacity: 1000 gallons per minute (gpm)
   - Submersible
   - Electric: 450 Horsepower
   - Centrifugal

   Well Owner (print): WAIKOLOA WATER COMPANY
   Landowner (print): WAIKOLOA LAND COMPANY
   Signature: 
   Date: 10/24/90

   For Official Use Only:
   Field Checked By 
   Latitude 
   Hydrologic Unit
   Longitude 
   State Well No. 5546-02
   Quad Map No. 15

Wai'koloa 3
Briefly describe the proposed work:

Proposed well will be drilled, cased, and pump tested. If it is successful, it will be added to the Waikoloa Water Company system as a new drinking water source.

PROPOSED SECTION OF WELL

Elevation at top of casing 1202 ft., msl.

Ground Elev. 1200 ft., msl

Cement Grout 500 ft.

Hole Dia. 21 in.

Total Depth 1290 ft.

Rock Packing None.

Solid Casing: Steel

Material

Length 1190 ft.

Diameter 1 3/16 in.

Wall thickness 0.3125 in.

Casing: /X/Perforated /Screen

Material Steel

Length 80 ft.

Diameter 14 in.

Wall thickness 0.3125 in.

Openings 80 sq. in./L.F.

Open Hole:

Length 20

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.
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 2173, Honolulu, Hawaii 96858. Application must be accompanied by a non-refundable filing fee of $11.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 541-1543, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii __ Tax Map Key 6-8-02:17

Address Waikoloa Village

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

2. WELL OWNER __ LANDOWNER

Firm Name Waikoloa Water Company

Contact Person Steve Hicks

Address P.O. Box 3028

Kamuela, Hawaii 96743

Phone 885-1000

Firm Name Waikoloa Land Company

Contact Person Carl Cordes

Address HC02 Box 5050

Waikoloa, HI 96743

Phone (808) 885-1000

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

Name To Be Competitively Bid

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) □ Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL 1,000,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: □ Vertical Turbine □ Submersible

Motor: □ Diesel □ Electric: 450 □ Centrifugal

Rated Pump Capacity 1000 gallons per minute (gpm)

Well Owner (print) WAIKOLOA WATER COMPANY Landowner (print) WAIKOLOA LAND COMPANY

Signature 

Date 6/14/200

For Official Use Only:
Field Checked By

Latitude 

Hydrologic Unit

State Well No. S546-02

Quad Map No. 15
Briefly describe the proposed work:

Proposed well will be drilled, cased, and pump tested. If it is successful, it will be added to the Waikoloa Water Company system as a new drinking water source.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

APPLICATION FOR

X WELL CONSTRUCTION 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 96813. 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 548-1942, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island: Hawaii  Tax Map Key: 6-8-02:17
Address: Waikoloa Village

(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
Contact Person: Steve Hicks
Address: P.O. Box 3028
Kamuela, Hawaii 96743
Phone: 885-1000

3. PROPOSED CONTRACTOR FOR:

Name: To Be Competitively Bid
Address: Contractor's License No.

4. PROPOSED WORK

- Drill New Well
- Alter
- Deepen
- Seal
- Install New Pump
- Replace Pump
- Redrill
- 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.)
- Domestic (individual, noncommercial water systems)
- Irrigation (specify)
- Industrial
- Military
- Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL: 1,000,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: Vertical Turbine
Motor: Diesel
Rated Pump Capacity: 1000 gallons per minute (gpm)

Well Owner (print): Waikoloa Water Company
Signature: [Signature]
Date: 10/24/80

Landowner (print): Waikoloa Land Company
Signature: [Signature]
Date: 10/24/80

For Official Use Only:
Field Checked By: [Signature]
Date: [Date]
Latitude: [Latitude]
Longitude: [Longitude]
Hydrologic Unit: [Unit]
State Well No.: [Number]
Quad Map No.: 15
Briefly describe the proposed work:

Proposed well will be drilled, cased, and pump tested. If it is successful, it will be added to the Waikoloa Water Company system as a new drinking water source.

PROPOSED SECTION OF WELL

Elevation at top of casing 1202 ft., msl.

Ground Elev. 1200 ft., msl*

Cement Grout 500 ft.

Solid Casing:

- Material: Steel
- Length: 1190 ft.
- Diameter: 14 in.
- Wall thickness: 0.3125 in.

Hole Dia. 21 in.

Total Depth 1290 ft.

Rock Packing None.

Casing: /X/Perforated / Screen

- Material: Steel
- Length: 80 ft.
- Diameter: 14 in.
- Wall thickness: 0.3125 in.
- Openings: 80 sq. in./L.F.

Open Hole:

- Length: 20 in.
- 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.