CHECKLIST

_ WELL CONSTRUCTION PERMIT  _ PUMP INSTALLATION PERMIT

WELL NAME or LOCATION: Honokohau - DWS  ISLAND: Hawaii

WELL NUMBER: 4158-02  Tax Map Key:

OWNER/OPERATOR:
Firm Name: County of Hawaii - DWS
Contact Person: H. William Sewake
Address: 25 Aupuni St., Hilo, Hawaii 96720
Phone: 9691421

LANDOWNER:
Firm Name: Palani Land Trust II
Contact Person: Robert D. Triantos
Address: P.O. Box 1720
Kailua-kona, Hawaii 96745-1720
Phone: 329-6464

Date application received.............................. 11-12-91
Date acknowledged receipt/request more info..............................
Date application accepted..........................................................
Suspense date (90 days)..........................................................
Date filing fee deposited..........................................................

Application sent to following:

<table>
<thead>
<tr>
<th>Dept. of Hawai Home Lands</th>
<th>Date sent</th>
<th>Comments received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Health</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office of Hawai. Affairs</td>
<td></td>
<td></td>
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<tr>
<td>State Hist Pres Div</td>
<td></td>
<td></td>
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<tr>
<td>Dept/Ed of Water Supply</td>
<td></td>
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<tr>
<td>Sierra Club L. D. F.</td>
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<tr>
<td>Koolauoa NB #38 (Oahu)</td>
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<tr>
<td>Dept.Pub. Wrks (Hawaii)</td>
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<tr>
<td>Additional List (Molokai)</td>
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</table>

Date agenda due..............................
Date submittal due..............................
Date submittal sent to applicant..............................

Date application _ approved or _ disapproved............................
Date applicant notified of decision..............................

REMARKS:__________________________________________________________
CHECKLIST

✓ WELL CONSTRUCTION PERMIT      ✓ PUMP INSTALLATION PERMIT

WELL NAME or LOCATION: DWS-HONOKOHAI WELL ISLAND: HAWAII

WELL NUMBER: 4158-02               Tax Map Key: 7-4-05:02

OWNER/OPERATOR:                  LANDOWNER:
Firm Name: COUNTY OF HAWAII DWS  Firm Name: PALANI LAND TRUST II
Contact Person: WILLIAM SEWAKE  Contact Person: ROBERT D. TRIANTOS
Address: 25 APUNI ST              Address: P.O. BOX 1720
          Hilo, Hawaii 96720          KAILUA-KONA, HI 96745-1720
Phone: 969-1421                   Phone: 329-6464

Date application received............ 25 Feb 1991
Date acknowledged receipt/request more info...... 3/12/91
Date application accepted................
Suspense date (90 days)........................
Date filing fee deposited............... (NO CHARGE)

Application sent to following:       Date sent       Comments received

Dept. of Health
Dept. of Hawn Home Lands
Dept/Ed of Water Supply
Historic Preserv. Prog.
Koolauoa NB #28 (Oahu)
Dept.Pub. Wrks (Hawaii)
Office of Hawaiian Affairs

Date agenda due............................
Date submittal due............................
Date submittal sent to applicant.........

Date application ___ approved or ___ disapproved....
Date applicant notified of decision...........

REMARKS: No signatures on permit applications
April 9, 1998

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

PUMP INSTALLATION REPORTS
WELL NOS. 4208-01 AND 4158-02

Enclosed, for your use, is one copy each of the following (permanent) Pump Installation Reports:

1. Well No. 4208-01 - Piionhua Well 3 (aka Piionhua Well "C").
2. Well No. 4158-02 - Honokohou Exploratory Well.

Please contact our Engineering Division at (808) 961-8660 if you have any questions.

Milton D. Pavao, P.E.
Manager

Encs. - 1 original each Report Well Nos. 4208-01 and 4158-02
2 copies each Report Well Nos. 4208-01 and 4158-02

copy - DWS Operations Division (w/3 copies of each Report)
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: 2/13/98

23. PUMP INSTALLATION:
   - Pump Type, Make, Serial No.: SUB., CENTRILIFT, 01J-67179
   - Capacity: 1400 gpm
   - Motor type, H.P., Voltage, rpm: SUB, 750, 4125, various 21H-47511, 46517
   - Depth of Pump Intake Setting 1635 ft below bottom head which elevation is 1681.78 ft
   - Depth to bottom of airline 1620 ft below bottom head which elevation is 1681.78 ft
   - Pumping Head is 1699 ft. Type of flow meter: magnetic which measures in gallons

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

25. Other remarks/comments: (See below)

Pump Installation Contractor (print) ROSCOE MOSS HAWAII, INC. Lic. No. AC-16437
Signature: William C. Moore
Date: 2/12/98

Applicant (print) Milton D. Pavao, Mgr. DWS
Signature:
Date: 4/25/98

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Water Level Depth (ft)</th>
<th>Rock Description, Remarks,</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>to</td>
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</tr>
</tbody>
</table>

19 & 25. Remarks:

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Discharge Flange
8" Std. 125# --
7/8" Dia hole.
8 Places On
11-3/4" Dia BHC

--

- 13" CL to Face of Flange
- 14" Base to CL of Discharge Flange
- 3-1/2" Thk

Elev. 1681 Ft.

Elev. +61 Ft.

- 11-3/4" Dia Base
- 14" BHC
- 13" CL

Concrete
Soil
9.75" Inch OD Coupling
8" Sched 40. Galvanized Column Pipe

Pump
Gas Separator
Seal
Motor
PHD
20" ID of Well

Roscoe Moss HI, INC
91-259A Dlai St. Kapolei, HI 96707
808 682 5554 PH 808 682 5866 FX
Hilo DWS - Honokahau -- Submersible Pump Instl

Surface Plate
27" Dia
7/8" Dia.
8 Holes On
25" Dia BHC.
As Shown
COMMENTS: THIS UNIT HAS 2 MOTORS WITH AN EXTERNAL PLUG IN (6TH-00135-53232-TANDO)
NO POWER ON LOCATION, WILL START AT LATER DATE
HAS 8.75 SERIES SEAL TANDO AND 7.25 SERIES MOTOR TANDO
1800' OF #1 SOLID CABLE

NONE

PRO 375

WRAPPED ANODE
Enclosed is a copy of the original Pump Installation (Part II of the Well Completion) Report for the Honokohau Well.

The original report was sent to your office with our April 9, 1998 submittal. A copy of the transmittal letter is also enclosed.

A copy of the report is also being sent to the State of Hawaii, Department of Health, Safe Drinking Water Branch, to comply with the condition of use of the well.

Please contact our Engineering Division at (808) 961-8660 if you have any questions.

Milton D. Pavao, P.E.
Manager

Enc.

copy - (w/enc.) State of Hawaii, Department of Health, Safe Drinking Water Branch Engineering Section
(w/o enc.) Department of Water Supply, Microbiological Laboratory

... Water brings progress...
Mr. Milton D. Pavao, Manager
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Dear Mr. Pavao:

SUBJECT: PUBLIC WATER SYSTEM NO. 131, DWS NORTH KONA
HONOKOHAU WELL
STATE WELL NO. 8-4158-02

We have completed our review of the engineering report submitted for the Honokohau Well, State Well No. 8-4158-02, prepared by Inaba Engineering, Inc. and the supplemental information submitted on May 22, 1998. The Department of Health hereby grants conditional approval for the use of the Honokohau Well as a drinking water source for a public water system.

In addition, the use of this well as a drinking water source shall be subject to the following conditions:

1. The Hawaii Department of Water Supply must submit Part II of the Well Completion Report to the Department of Land and Natural Resources to satisfy the conditions of the Pump Installation Permit for the subject well.

2. The Honokohau Well, State Well No. 8-4158-02, shall deliver potable water of the quality in compliance with Hawaii Administrative Rules, Title 11, Chapter 20, "Potable Water Systems." The water quality shall be subject to verification by the Department of Health.

3. The Hawaii Department of Water Supply, in its operation of the Honokohau Well, State Well No. 8-4158-02, shall comply with all other relevant provisions of Hawaii Administrative Rules, Title 11, Chapter 20, "Potable Water Systems."

4. The Hawaii Department of Water Supply shall notify the Department of Health of any condition that may arise or be revealed which may contaminate the source and pose a threat to human health.
5. The Honokohau Well shall be properly disinfected prior to entry into the distribution system.

6. The Hawaii Department of Water Supply must sample and analyze the Honokohau Well for all required contaminants that are not analyzed by the Department of Health, State Laboratories Division.

Presently, the Department of Health cannot analyze the following EPA regulated contaminants:

- Cyanide
- Benzo(A)Pyrene
- Dalapon
- Di(ethylhexyl)-Adipate
- Di(ethylhexyl)-Phthalate
- Dinoseb
- 2,3,7,8-TCDD (Dioxin)
- Endothall
- Pentachlorophenol
- Picloram
- 2,4,5-TP (Silvex)
- 2,4-D
- Diquat

Please note that the drinking water regulations are frequently revised and the preceding list may be subject to change.

7. Hawaii Revised Statutes, Chapter 340E-24, requires suppliers of water to notify the Department of Health, in writing, of any previously undetected chemical contaminant found in a source of drinking water, within seven days of the positive detection.

8. It is also important to note that the drinking water well(s) may affect future development plans. Hawaii Administrative Rules, Title 11, Chapter 23, Underground Injection Control, prohibits the siting of an injection well within 1/4 - mile of any drinking water well. In addition, Hawaii Administrative Rules, Title 11, Chapter 62, Wastewater Systems requires septic tank effluent disposal systems (page 9, section 4.e.4) to be located at least 1,000 feet from the drinking water well.

The Department of Health reserves the right to suspend or revoke this conditional approval upon either a finding of violation on any of the above conditions or a determination of a threat to public health from factors which may arise in the future.
Thank you for your attention and concern to these matters. If you should have any questions, please contact Ms. Queenie Komori of the Safe Drinking Water Branch, Engineering Section, at 586-4258.

Sincerely,

THOMAS E. ARIZUMI, P.E. CHIEF
Environmental Management Division

QK:la

c: SDWB Monitoring Section
    SDWB Enforcement Section
    Ryan Imata, CWRM
    Paul Okuna, Hawaii SDWB Sanitarian
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: 2/13/98

23. PUMP INSTALLATION:
   - Pump Type, Make, Serial No.: SUB., CENTRILIFT, 01J-67179
   - Capacity: 1400 gpm
   - Motor type, H.P., Voltage, rpm: SUB, 750, 4125, various 21H-47511, 46517
   - Depth of Pump Intake Setting: 1635 ft. below bottom head which elevation is 1681.78 ft.
   - Depth to bottom of airline: 1620 ft. below bottom head which elevation is 1681.78 ft.
   - Pumping Head is 1699 ft. Type of flow meter: magnetic which measures in gallons.

24. As-built drawings attached: XX Yes ___ No

25. Other remarks/comments: (See below)

Pump Installation Contractor (print) ROSCOE MOSS HAWAII, INC. Lic. No. AC-16437
Signature _______________ Date 2/12/98

Applicant (print) Milton D. Pavao, Mgr. DWS
Signature _______________ Date 4/21/98

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

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

19 & 25. Remarks: WELL 4159-02 HONOKOHALU - DWS

 uneven surface
## WELL COMPLETION REPORT

(Check Appropriate Box)  
□ Well Construction  
X□ (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 1-800-468-4644 Extension 70225.

1. State Well No.: 4158-02  
   Well Name: HONOKOHU  
   Island: HAWAII

2. Location/Address: HONOKOHU, N. KONA, HAWAII  
   Tax Map Key: 7-4-05:02 (por)

### 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)

   Depth (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 __________  
   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) ___________________________  Date __________
COMMENTS: THIS UNIT HAS 2 MOTORS WITH AN EXTERNAL PLUG IN 61H-00135-53132-TANDO)
NO POWER ON LOCATION, WILL START AT LATER DATE
HAS 6.75 SERIES SEAL TANDO AND 7.25 SERIES MOTOR TANDO
1800' OF #1 SOLID CABLE

PUMP S/N: 21H-47577
2080 110 VOLTS / AMPS
975 HP
MOTOR S/N 21H-47578
2080 110 VOLTS / AMPS
975 HP
MOTOR-3 S/N
MOTOR-2 S/N
PHIDO
GARY TURNER
A. **STATE WELL NO.** 123-02  
**WELL NAME** Honokouh Expl. Well  
**ISLAND** Hawaii

B. **LOCATION** North Kona

C. **WELL OWNER** County of Hawaii

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

E. **TYPE OF RIG** Spencer Harris Rotary Rig  
**DRILLER** Kihei Ahuna

F. **DATE OF WELL COMPLETION** 08/31/91  
**DATE OF PUMP INSTALLATION** na

G. **GROUND ELEVATION** (ma) 1674.51 ft.

| Top of Drilling Platform | 1585  
| Height of drilling platform above ground surface | 11 ft.  
| Bench mark and method used to determine ground elevation | ft. |

H. **TOTAL DEPTH OF WELL BELOW GROUND** 1725 ft.

I. **HOLE SIZE**  
- 26 inch dia. from 0 ft. to 1735 ft. below ground  
- 18 inch dia. from 0 ft. to 1735 ft. below ground

J. **CASING INSTALLED**  
- 20 in. ID x 5/16 in. well solid section to 1735 ft. below ground  
- 20 in. ID x 3/16 in. well perforated section to 1715 ft. below ground  
**Type of perforation** Ful-Flo

K. **ANNUAL**  
- Grouted from 0 ft. to 1551 ft. below ground  
- Gravel packed from 1551 ft. to 1735 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 annulus ft. below which elevation is ft.

M. **PROPOSED USE**

N. **INITIAL WATER LEVEL**  
**Date and time of measurement** 08/31/91  
**Date and time of sampling** 08/12/91 / 9:22 a.m.

O. **INITIAL CHLORIDE** 8 ppm.

P. **PUMPING TESTS**  
- Reference point (R.P.) used: GL  
- Date and time of measurement 03/18/91  
- Date and time of sampling 08/12/91 / 9:22 a.m.

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Rate Drawn (gpm)</th>
<th>Rate Drawn (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/12/91</td>
<td>1585.15 ft. below R. P.</td>
<td>1674.51 ft. below R. P.</td>
<td>99.35 ft. below R. P.</td>
<td>128 ft.</td>
<td>104 ft.</td>
</tr>
</tbody>
</table>

Q. **DRILLER’S LOG**

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level</th>
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<tbody>
<tr>
<td>28 to 28</td>
<td>Decomposed rock</td>
<td>638 to 662</td>
<td>28 to 28</td>
<td>Decomposed rock</td>
<td>638 to 662</td>
</tr>
<tr>
<td>28 to 83</td>
<td>Med. hard, dense rock</td>
<td>649 to 680</td>
<td>28 to 83</td>
<td>Med. hard, dense rock</td>
<td>649 to 680</td>
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<tr>
<td>83 to 130</td>
<td>Clinkery &amp; broken a’a</td>
<td>699 to 740</td>
<td>83 to 130</td>
<td>Clinkery &amp; broken a’a</td>
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<tr>
<td>130 to 184</td>
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<td>782 to 978</td>
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<td>Med. gray, dense lava</td>
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<tr>
<td>230 to 321</td>
<td>Soft red cinders</td>
<td>797 to 890</td>
<td>230 to 321</td>
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<td>797 to 890</td>
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<tr>
<td>321 to 425</td>
<td>Clinkery &amp; broken a’a</td>
<td>1125 to 1225</td>
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<td>1125 to 1225</td>
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<tr>
<td>425 to 479</td>
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<td>Soft. red/grey cinder</td>
<td>1225 to 1267</td>
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<td>479 to 536</td>
<td>Med. dense black lava</td>
<td>1267 to 1340</td>
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<td>1267 to 1340</td>
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<tr>
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<td>536 to 597</td>
<td>Hard dense pahoehoce</td>
<td>1340 to 1545</td>
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<tr>
<td>597 to 638</td>
<td>Med. clinkery rubble</td>
<td>1545 to 1735</td>
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<td>Med. blue/blk. lava w/red</td>
<td>1545 to 1735</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>cinders &amp; ollivens</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

Submitted by (print) Blaise Clay  
**Title** Drilling Superintendent  
**Signature** Blaise Clay  
**Date** January 20, 1992
February 15, 1995

Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720

Reference: Honokohau (Well No. 4158-02)
Your letter dated February 7, 1995

Gentlemen:

Enclosed please find a copy of the completed Well Completion Report that was submitted to the State of Hawaii, Division of Water & Land Development on January 20, 1992.

Very truly yours,

WATER RESOURCES INTERNATIONAL, INC.

Sandra A. Meyer
Assistant Vice President

/sm
Enc.

cc: Commission on Water Resource Management
**WCR 2 Check for Well No. 4158-02**  
(survey to regulation memo)

### 1. Pump Tests Check (special condition of PIP? Yes/No)

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>If no, describe deficiency</th>
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<tr>
<td>Glenn Bauer (initial if yes)</td>
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<tr>
<td>Step-Drawdown Test:</td>
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<tr>
<td>acceptable</td>
<td>☐</td>
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<tr>
<td>followed WCPI Stds</td>
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<tr>
<td>analysis attached</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>proposed pump cap o.k.</td>
<td>☐</td>
<td>☐</td>
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<table>
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<tr>
<th>Aquifer Pump Test:</th>
<th></th>
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<tr>
<td>acceptable</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>followed WCPI Stds</td>
<td>☐</td>
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<tr>
<td>T &amp; S analysis attached</td>
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<table>
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<th>Well Interference:</th>
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<tr>
<td>estimated Steady-State drawdown at 1-mile radius is ________ ft.</td>
<td>☐</td>
<td>☐</td>
<td>analysis attached</td>
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<th>Stream Surface Water Impacted:</th>
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<td></td>
<td>☐</td>
<td>☐</td>
<td>If yes, identify most probable stream</td>
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### 2. Pump Installation Check

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>No</th>
<th>If no, describe deficiency</th>
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<tbody>
<tr>
<td>Mitch Ohye (initial)</td>
<td></td>
<td></td>
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<tr>
<td>data complete</td>
<td>☑</td>
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<td>welaplic.dbf updated</td>
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<td>☐</td>
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</table>
Pumping Test No. Long-Term Test
Well No. 4158-02
Discharge 1489.00 U.S. gal/min

Transmissivity [ft²/d]: 3.22 x 10⁴
Storativity: 1.62 x 10⁻¹
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<tr>
<td>23</td>
<td>3.91389</td>
<td>1576.65</td>
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</tbody>
</table>
Transmissivity [ft²/d]: 8.17 x 10⁴
Storativity: 2.42 x 10⁻¹⁰

Pumping Well is also the observation well. An airline was used to measure drawdown so measurements are accurate to 0.2± feet.

Aquifer test was performed before the CWRM Aquifer Test Protocol was developed.
### Pumping Test Analysis

#### Time-Drawdown Method

**Date:** 20.04.1996

**Project:** DWS Honokohau Well, Hawaii

**Evaluated by:** Glenn Bauer

---

**Pumping Test No:** Long-Term Test

- **Well No:** 4158-02
- **Discharge:** 1489.00 U.S. gal/min

**Honokohau Well**

**Distance from the pumping well:** 1.00 ft

**Static water level:** 1566.15 ft below datum

#### Pumping Test Duration

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**WCR 2 Check for Well No. 4158-02**

(survey to regulation memo)

1. **Pump Tests Check (special condition of PIP? Yes/No)**
   - Glenn Bauer [initial if yes]
   - **Yes** □  **No** □  If no, describe deficiency
   
   **Step-Drawdown Test:**
   - acceptable □ □
   - followed WCPI Stds □ □
   - analysis attached □ □
   - proposed pump cap o.k. □ □
   - **no step-drawdown test performed (or at least not submitted)**

   **Aquifer Pump Test:**
   - acceptable □ □
   - followed WCPI Stds □ □
   - T & S analysis attached □ □
   - prior to pump test protocol

   **Well Interference:**
   - estimated Steady-State drawdown at 1-mile radius is ______ ft.
   - analysis attached □ □
   - too complex geologically to make predictions

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

2. **Pump Installation Check**
   - Mitch Ohye [initial]
   - **Yes** □  **No** □  If no, describe deficiency
   
   - data complete □ □
   - followed WCPI Stds □ □
   - wellphys.dbf updated □ □
   - welaplic.dbf updated □ □
April 9, 1998

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

PUMP INSTALLATION REPORTS
WELL NOS. 4208-01 AND 4158-02

Enclosed, for your use, is one copy each of the following (permanent) Pump Installation Reports:

1. Well No. 4208-01 - Piilhonua Well 3 (aka Piilhonua Well "C")
2. Well No. 4158-02 - Honokohau Exploratory Well

Please contact our Engineering Division at (808) 961-8660 if you have any questions.

Milton D. Pavao, P.E.
Manager

Encs. - 1 original each Report Well Nos. 4208-01 and 4158-02
2 copies each Report Well Nos. 4208-01 and 4158-02

copy - DWS Operations Division (w/3 copies of each Report)
COMMISSION ON WATER RESOURCE MANAGEMENT

FROM: [Name] DATE: 2/19/97 SUSPENSE DATE

TO: BAUER, G. INIT. LOUI, R. TO: NAKAMA, L. INIT. UN
FOR: Approval PLEASE: See Me
FOR: Signature PLEASE: Review & Comment
FOR: Information PLEASE: Take Action
FOR: Type Draft
FOR: Type Final
FOR: File
FOR: Xerox ___ copies

BAUER, G. (X)
CHING, F. (X)
FUJI, N. (X)
HARDY, R. (X)
HIGA, D. (X)
HIRANO, E. (X)
ICE, C. (X)
IMATA, R. (X)
JINNAI, R. (X)
KUNIMURA, I. (X)

Need to clear these dangling permit issuances. Order
7 or 10 in lots of remainders for included
2 to issue prior to complete our files
This report follows for these permits "approved" but not issued.
## Well Construction & Pump Installation Permits Approved but Not Issued

February 19, 1997

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<th>Well Name</th>
<th>Applicant</th>
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<th>Accept</th>
<th>Approve</th>
<th>WCP Issued</th>
<th>WCP Part 1 Submitted</th>
<th>WCR Part 1 Submitted</th>
<th>PIP Issued</th>
<th>WCR Part 2 Submitted</th>
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<td>Hawaii DWS</td>
<td>EXPL</td>
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### Island of OAHU

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<td>Honolulu Sake Brewery</td>
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<td>C&amp;C Dept of Trans Service</td>
<td>WELL</td>
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<td>WELL</td>
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<td>SLD</td>
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Note: Permits issued in the 1991-1993 timeframe probably won’t show an issued date. Issued date = Approval date. Because old permits only have approval date, a new date field recently added to .dbf. Mitch has been trying to populate new date field. I guess these are the ONLY pages that fell thru crack.
Mr. Milton Pavao, Manager  
Department of Water Supply  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720  

Dear Mr. Pavao:

Our records indicate that these two wells may have been completed. However, we have not yet received Well Completion Reports to confirm it:

1. Honokaa Well A (Well No. 6428-01)  
2. Honokohau (Well No. 4158-02)

We have received a well completion report but no as-built sectional drawing of the installed pump in Kekii Well 4 (Well No. 2753-03).

Please submit these reports as soon as possible.

We would also like an update on the status of Waiaha Exploratory Well (Well No. 3857-01).

If you have questions, please contact Charley Ice at 587-0251.

Sincerely,

RAE M. LOUI  
Deputy Director

CI:ss
November 9, 1994

TO: Mayor Stephen K. Yamashiro  
FROM: H. William Sewake, Manager  
SUBJECT: NOVEMBER 1994 WATER COMMISSION MEETING

Date: November 22, 1994  
Time: 10:00 a.m.  
Place: Department of Water Supply Office

If you require an accommodation or auxiliary aid and/or services to participate in this meeting (i.e., sign language interpreter, large print), please call this number 969-1421.
DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAII
HILO, HAWAII

November 14, 1994

TO: Chairman and Members of the Water Commission

FROM: H. William Sewake, Manager

SUBJECT: AGENDA FOR NOVEMBER 22, 1994 WATER COMMISSION MEETING

1) CALL TO ORDER - DEPARTMENT OF WATER SUPPLY - 10:00 A.M.

2) STATEMENTS FROM THE PUBLIC

3) APPROVAL OF MINUTES - OCTOBER 25, 1994 MEETING

4) SOUTH HILO:

A) JOB NO. 89-488, PIHONUA WELL NO. 3 EXPLORATORY DRILLING:

Our special legal counsel, Mr. Sherman Hee, will provide us with status regarding the filing of the suit against the bonding company, AmWest Surety Insurance Company.

Additional report will be provided at the meeting.

B) PIHONUA PRODUCTION WELL NO. 3 SUB-RECIPIENT AGREEMENT - 1990 COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAM:

We received the draft sub-recipient agreement document for review and for execution by the Water Commission and the County of Hawaii.

The Department of Water Supply through the Office of Housing and Community Development submitted an application for the use of reprogrammed 1990 Community Development Block Grant (CDBG) funds. The application was approved for the amount of $250,000.00. This amount will be used to supplement the construction portion of this project. The current estimated cost is $1,000,000.00.

For the Commission's information, this project consists of outfitting the existing Piohonua Well No. 3 into a production source. This exploratory well remains to be completed. However, a suit (complaint) has been served on the bonding company. We anticipate that the well will be completed shortly and that the scheduling for the advertisement of bids for this production well project will take place accordingly.
This sub-recipient agreement specifies that schedules, terms, and conditions for the use of the CDBG funds. The agreement will be forwarded to our Corporation Counsel for their review and approval.

RECOMMENDATION: It is recommended that the Commission accept the sub-recipient agreement subject to the approval of the Corporation Counsel and that the Chairman or Vice Chairman be authorized to sign the documents.

C) REQUEST FOR ABANDONMENT OF 10-FOOT WIDE PIPELINE EASEMENT "A" - DANIEL AND JULIA RODRIGUES, TAX MAP KEY 2-7-33:04, PAPAIKOU, SOUTH HILO, HAWAII:

We received a request from Daniel and Julia Rodrigues for consideration for the abandonment of a 10-foot wide pipeline easement running alongside their side property line.

The Department made some waterline improvements in the area many years ago. And, the existing 3-inch G.I. pipeline in that easement was disconnected and abandoned in place. There is no need to have this easement and the easement can be abandoned and returned to the property owner. We will work with our Corporation Counsel to draft the cancellation of easement agreement.

RECOMMENDATION: It is recommended that the Commission approve of this cancellation of easement subject to the approval of our Corporation Counsel and that the Chairman and Vice Chairman be authorized to sign the documents.

5) HAMAKUA:

A) HAMAKUA SUGAR COMPANY WATER SYSTEM:

See attached report.

6) SOUTH KOHALA:

A) AGREEMENT WITH MAUNA LANI RESORT, INC., AND MAUNA KEA PROPERTIES, INC.:

Attached are proposed agreements with Mauna Lani Resort, Inc., and Mauna Kea Properties, Inc., on further development of water in South Kohala.

They are ready to develop more water but would like to support our transmission project if it becomes a reality.

A report of recommendation will be given at the meeting.
7) NORTH KONA:

A) JOB NO. 89-504, CONSTRUCTION OF THE WAIAHA WELL EXPLORATORY DRILLING:

Our special legal counsel, Mr. Sherman Hee, will provide us with status regarding the discussions with the bonding company, National American Insurance Company, for the completion of this project.

Additional report will be provided at the meeting.

B) KEALAKEHE WELL SITE AND ACCESS AND UTILITY EASEMENT - TOKUNAGA MASONRY, INC., TAX MAP KEY 7-4-03:05 (PORTION):

We have negotiated and will be acquiring a well site together with access and utility easement. The current owner is Tokunaga Masonry, Inc. The well site is approximately 15,000 square feet and the purchase price is for $50,000.00.

The deed and easement documents have been transmitted to our Corporation Counsel for their review.

RECOMMENDATION: It is recommended that the Commission accept these documents subject to the approval of our Corporation Counsel and that the Chairman or Vice Chairman be authorized to sign the documents.

8) MISCELLANEOUS:

A) DEDICATION OF WATER SYSTEM:

We received the following document for action by the Water Commission. The water system has been constructed in accordance with the Department's standards and is in acceptable condition for dedication.

(1) Mountain View Elementary School Water Meter Easement
    Owner: State of Hawaii
    District: Olaa, Puna, Hawaii
    Tax Map Key: 1-8-01:07

RECOMMENDATION: It is recommended that the Commission accept this document, subject to the approval of the Corporation Counsel, and that either the Chairman or the Vice-Chairman be authorized to sign the document.

B) VEHICLE BID NO. 94-2, FURNISHING AND DELIVERING VEHICLES TO THE DEPARTMENT OF WATER SUPPLY, COUNTY OF HAWAII:

Bids for this project will be opened on November 17, 1994 and a report and recommendation will be provided at the meeting.
This bid will be for two (2) 4-door sedans. One vehicle will be for the Engineering Division and the other for Fiscal Division.

C) REFUND AGREEMENTS:

A 70 Percent Refund Agreements: Mr. Eugene Aguiar and Kapoho Water Company.

Recommend that the Water Commission enter into and approve a 70 percent refund agreement with these two developers. Attached are drafts of the agreement which are subject to Corporation Counsel's approval.

D) MONTHLY FINANCIAL REPORT:

The financial reports for August 1994 will be mailed later.

E) MONTHLY PROGRESS REPORT OF PROJECTS:

Attached is the monthly progress report of projects.

F) MANAGER'S REPORT:

1) Items of current interest

9) HIRING A NEW MANAGER:

Selection Process - Applications will be reviewed.

10) ANNOUNCEMENTS:

11) ADJOURNMENT:

If you require an accommodation or auxiliary aid and/or services to participate in this meeting (i.e., sign language interpreter, large print), please call this number 969-1421.
<table>
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<th>JOB NO. AND PROJECT</th>
<th>NOTICE TO PROCEED</th>
<th>COMPLETION DATE</th>
<th>FUND INSPI</th>
<th>CONTR. PRICE/ CONTIGCY. AMT</th>
<th>PAYM. TO DATE</th>
<th>COMPLD. TO PREV.</th>
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SOUTH Hilo (continued)

94-599, Furnishing and Delivering Water Meters, Brass Goods, Fire Hydrants, Automatic Control Valves and Chlorinators

Parts I, II, III, IV, V, VI, VII, VIII, XI
Hawaii Pipe & Supply Parts VII
VIII, IX - A.P. Water Supply Part III - Schlumberger Part X - Brewer Chemical

HAMAKUA:

90-531, Paauilo Well Development Glover 12/28/92 03/18/94 DWS GO 485,000.00 450,325.00 100 99

All work completed as of 10/03/94. Acceptance pending completion of punch list items.

94-598 Removal of Eucalyptus Trees at Ahualoa Sawmill Tank Site Jacunski DWS 10,290.00 11,000.00 0 0
Contract documents being processed.

NORTH KOHALA:

93-548, Hawi Reservoir New 12-Inch Effluent Transmission Waterline M. Luce 04/21/94 11/16/94 HUD State 324,240.00 274,997.81 87 84
Connection at Hawi Reservoir site completed. Connection at Hawi Mill Road/Hawi-Mahukona Road to be scheduled soon.
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MISCELLANEOUS:

Kohala Coast Transmission System

Vehicle Bid No. 94-1, Furnishing and Delivering Vehicle to the DWS | Hawaii Motors | 08/29/94 | 12/27/94 | 17,676.27 | 0 | 0 | Awaiting delivery. |

Vehicle Bid No. 94-2, Furnishing and Delivering Vehicle to the DWS

The Engineering Report is 90% complete. The design phase for Phase I to commence. Advance drawings have been submitted. Additional agreements for planning, surveying, and engineering have been executed. Draft Environmental Assessment filed with the Office of Environmental Quality Control. Bids opened 11/17/94. Report to be given.
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November 9, 1994

TO: Mayor Stephen K. Yamashiro
FROM: H. William Sewake, Manager
SUBJECT: NOVEMBER 1994 WATER COMMISSION MEETING

Date: November 22, 1994
Time: 10:00 a.m.
Place: Department of Water Supply Office

If you require an accommodation or auxiliary aid and/or services to participate in this meeting (i.e., sign language interpreter, large print), please call this number 969-1421.
DEPARTMENT OF WATER SUPPLY  
COUNTY OF HAWAII  
HILO, HAWAII

November 14, 1994

TO: Chairman and Members of the Water Commission

FROM: H. William Sewake, Manager

SUBJECT: AGENDA FOR NOVEMBER 22, 1994 WATER COMMISSION MEETING

1) CALL TO ORDER - DEPARTMENT OF WATER SUPPLY - 10:00 A.M.

2) STATEMENTS FROM THE PUBLIC

3) APPROVAL OF MINUTES - OCTOBER 25, 1994 MEETING

4) SOUTH HILO:

   A) JOB NO. 89-488, PIHONUA WELL NO. 3 EXPLORATORY DRILLING:

      Our special legal counsel, Mr. Sherman Hee, will provide us with status
      regarding the filing of the suit against the bonding company, AmWest
      Surety Insurance Company.

      Additional report will be provided at the meeting.

   B) PIHONUA PRODUCTION WELL NO. 3 SUB-RECIPIENT AGREEMENT - 1990 COMMUNITY
      DEVELOPMENT BLOCK GRANT PROGRAM:

      We received the draft sub-recipient agreement document for review and
      for execution by the Water Commission and the County of Hawaii.

      The Department of Water Supply through the Office of Housing and
      Community Development submitted an application for the use of
      reprogrammed 1990 Community Development Block Grant (CDBG) funds. The
      application was approved for the amount of $250,000.00. This amount
      will be used to supplement the construction portion of this project.
      The current estimated cost is $1,000,000.00.

      For the Commission's information, this project consists of outfitting
      the existing Pihioua Well No. 3 into a production source. This
      exploratory well remains to be completed. However, a suit (complaint)
      has been served on the bonding company. We anticipate that the well
      will be completed shortly and that the scheduling for the advertisement
      of bids for this production well project will take place accordingly.
This sub-recipient agreement specifies that schedules, terms, and conditions for the use of the CDBG funds. The agreement will be forwarded to our Corporation Counsel for their review and approval.

RECOMMENDATION: It is recommended that the Commission accept the sub-recipient agreement subject to the approval of the Corporation Counsel and that the Chairman or Vice Chairman be authorized to sign the documents.

C) REQUEST FOR ABANDONMENT OF 10-FOOT WIDE PIPELINE EASEMENT "A" - DANIEL AND JULIA RODRIGUES, TAX MAP KEY 2-7-33:04, PAPAIKOU, SOUTH HILO, HAWAII:

We received a request from Daniel and Julia Rodrigues for consideration for the abandonment of a 10-foot wide pipeline easement running alongside their side property line.

The Department made some waterline improvements in the area many years ago. And, the existing 3-inch G.I. pipeline in that easement was disconnected and abandoned in place. There is no need to have this easement and the easement can be abandoned and returned to the property owner. We will work with our Corporation Counsel to draft the cancellation of easement agreement.

RECOMMENDATION: It is recommended that the Commission approve of this cancellation of easement subject to the approval of our Corporation Counsel and that the Chairman and Vice Chairman be authorized to sign the documents.

5) HAMAKUA:

A) HAMAKUA SUGAR COMPANY WATER SYSTEM:

See attached report.

6) SOUTH KOHALA:

A) AGREEMENT WITH MAUNA LANI RESORT, INC., AND MAUNA KEA PROPERTIES, INC.:

Attached are proposed agreements with Mauna Lani Resort, Inc., and Mauna Kea Properties, Inc., on further development of water in South Kohala.

They are ready to develop more water but would like to support our transmission project if it becomes a reality.

A report of recommendation will be given at the meeting.
7) NORTH KONA:

A) JOB NO. 89-504, CONSTRUCTION OF THE WAIAHA WELL EXPLORATORY DRILLING:

Our special legal counsel, Mr. Sherman Hee, will provide us with status regarding the discussions with the bonding company, National American Insurance Company, for the completion of this project.

Additional report will be provided at the meeting.

B) KEALAKEHE WELL SITE AND ACCESS AND UTILITY EASEMENT - TOKUNAGA MASONRY, INC., TAX MAP KEY 7-4-03:05 (PORTION):

We have negotiated and will be acquiring a well site together with access and utility easement. The current owner is Tokunaga Masonry, Inc. The well site is approximately 15,000 square feet and the purchase price is for $50,000.00.

The deed and easement documents have been transmitted to our Corporation Counsel for their review.

RECOMMENDATION: It is recommended that the Commission accept these documents subject to the approval of our Corporation Counsel and that the Chairman or Vice Chairman be authorized to sign the documents.

B) MISCELLANEOUS:

A) DEDICATION OF WATER SYSTEM:

We received the following document for action by the Water Commission. The water system has been constructed in accordance with the Department's standards and is in acceptable condition for dedication.

(1) Mountain View Elementary School Water Meter Easement
Owner: State of Hawaii
District: Olaa, Puna, Hawaii
Tax Map Key: 1-8-01:07

RECOMMENDATION: It is recommended that the Commission accept this document, subject to the approval of the Corporation Counsel, and that either the Chairman or the Vice-Chairman be authorized to sign the document.

B) VEHICLE BID NO. 94-2, FURNISHING AND DELIVERING VEHICLES TO THE DEPARTMENT OF WATER SUPPLY, COUNTY OF HAWAII:

Bids for this project will be opened on November 17, 1994 and a report and recommendation will be provided at the meeting.
This bid will be for two (2) 4-door sedans. One vehicle will be for the Engineering Division and the other for Fiscal Division.

C) REFUND AGREEMENTS:

A 70 Percent Refund Agreements: Mr. Eugene Aguiar and Kapoho Water Company.

Recommend that the Water Commission enter into and approve a 70 percent refund agreement with these two developers. Attached are drafts of the agreement which are subject to Corporation Counsel's approval.

D) MONTHLY FINANCIAL REPORT:

The financial reports for August 1994 will be mailed later.

E) MONTHLY PROGRESS REPORT OF PROJECTS:

Attached is the monthly progress report of projects.

F) MANAGER'S REPORT:

1) Items of current interest

9) HIRING A NEW MANAGER:

Selection Process – Applications will be reviewed.

10) ANNOUNCEMENTS:

11) ADJOURNMENT:

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- Administration of contract to be taken over by Dept. of Public Works.

- Contractor working on punch list items.

- Final payment to be processed pending minor repairs.

- Contractor is in Chapter 7 Bankruptcy provisions. Our legal counsel has filed suit (complaint) on the bonding company.

- Materials on site on 10/7/94. Resolved painting method to new galvanized metals. Material is to be weathered before work can proceed.

- All work completed. Final payment to be processed.
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</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMAKUA:</th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>90-531, Paauilo Well Development</td>
<td>Glover</td>
<td>12/28/92</td>
<td>03/18/94</td>
<td>DWS</td>
<td>GO</td>
<td>485,000.00</td>
<td>450,325.00</td>
</tr>
<tr>
<td>WCR?</td>
<td>$422,000.00</td>
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</table>

| 94-598 Removal of Eucalyptus Trees at Ahaloa Sawmill Tank Site | Jacunski | DWS | 10,290.00 | 0 | 0 | Contract documents being processed. |

<table>
<thead>
<tr>
<th>NORTH KOHALA:</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>93-548, Hawi Reservoir New 12-Inch Effluent Transmission Waterline</td>
<td>M. Luce</td>
<td>04/21/94</td>
<td>11/16/94</td>
<td>HUD</td>
<td>State</td>
<td>324,240.00</td>
<td>274,997.81</td>
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<tr>
<td>JOB NO. AND PROJECT</td>
<td>NOTICE TO PROCEED</td>
<td>COMPLETION DATE</td>
<td>FUND</td>
<td>CONTR. PRICE</td>
<td>CONTR./CONTG. AMT.</td>
<td>PAYMT. TO DATE</td>
<td>COMPL. TO PREV.</td>
</tr>
<tr>
<td>---------------------</td>
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<tr>
<td>NORTH KONA:</td>
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<td></td>
</tr>
<tr>
<td>89-504, Waiaha Well Exp. Drilling Paul Frandsen 11/05/90 10/20/91 DWS GS 967,565.00 810,960.87 84 84</td>
<td>Contractor is in Chapter 7 of Bankruptcy provisions. Our legal counsel to instruct and order bonding company to expeditiously complete the project.</td>
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</tr>
<tr>
<td>91-539, Honokohau Prod. &amp; Support Coluccio 11/01/93 06/29/94 DWS FE 737,797.00 715,172.80 100 98</td>
<td>All work completed. Final payment being processed</td>
<td></td>
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<tr>
<td>91-539, Honokohau Prod. &amp; Support Sonomura 07/27/94 07/21/95 DWS FE 1,971,400.00 106,868.78 6 1</td>
<td>Site work and under tank piping being done.</td>
<td></td>
<td></td>
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</tbody>
</table>

MISCELLANEOUS:

- Kohala Coast Transmission System

Vehicle Bid No. 94-1, Furnishing and Delivering Vehicle to the DWS Hawaii Motors 08/29/94 12/27/94 17,676.27 0 0 Awaiting delivery.

Vehicle Bid No. 94-2, Furnishing and Delivering Vehicle to the DWS

The Engineering Report is 90% complete. The design phase for Phase I to commence. Advance drawings have been submitted. Additional agreements for planning, surveying, and engineering have been executed. Draft Environmental Assessment filed with the Office of Environmental Quality Control.

Bids opened 11/17/94. Report to be given.
<table>
<thead>
<tr>
<th>JOB NO.</th>
<th>AND PROJECT</th>
<th>CONSTRUCTION</th>
<th>COMPLETION</th>
<th>FUND</th>
<th>INSPECTION</th>
<th>CONTRACT PRICE</th>
<th>COMPL. TO</th>
<th>PRIV.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-HW-D, Keel Well 4 Development</td>
<td>KKRC</td>
<td>10/01/92</td>
<td>06/27/93</td>
<td>DLNR</td>
<td>MO</td>
<td>633,142.00</td>
<td>100</td>
<td>100</td>
<td>Pump efficiency test due 11/09/94.</td>
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<tr>
<td>6428-01</td>
<td>Paul Frandsen</td>
<td>10/16/89</td>
<td>07/12/90</td>
<td>State</td>
<td>MO</td>
<td>724,530.00</td>
<td>94</td>
<td>94</td>
<td>State working with Bonding Company to complete project.</td>
</tr>
<tr>
<td>11-16-7019, Mt. View Elementary School Off-Site Waterline Improvements (DAGS)</td>
<td>Rimrock</td>
<td>07/05/94</td>
<td>12/23/94</td>
<td>State</td>
<td>DWS</td>
<td>1,114,705.00</td>
<td>50</td>
<td>40</td>
<td>Connection at Station No. 1 completed but not connected to new 12&quot; waterline. Pressure testing new 12&quot; waterline.</td>
</tr>
<tr>
<td>P-2908 Kaloko Water Tank</td>
<td>Glover</td>
<td>09/30/92</td>
<td>10/12/94</td>
<td>DPW</td>
<td>GS</td>
<td>4,367,000.00</td>
<td>75</td>
<td>70</td>
<td>Contractor working on booster pump piping and control buildings.</td>
</tr>
</tbody>
</table>
Ms. Rae M. Loui, Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809  

WELL DRILLING PERMITS  

We are providing you with the status and direction of the following well drilling projects to assure you that we are definitely pursuing these projects.

1. Pihihua Exploratory Well (4208-01)  
   
   The contractor, Paul Frandsen & Associates (PFA), was contractually obligated to complete this drilling phase on October 25, 1990. However, PFA filed for Chapter 11 with the U.S. Bankruptcy Court and subsequently filed for Chapter 7 (Bankruptcy). We have terminated the contract. And, our legal counsel is working with the bond company for the completion of this project.  
   
   The project is 90 percent completed. We anticipate that the bond company will be able to secure a new drilling contractor within a matter of weeks.

2. Waiaha Exploratory Well (3857-01)  
   
   The contractor, Paul Frandsen and Associates (PFA), was contractually obligated to complete this drilling phase on October 20, 1991. PFA filed for Chapter 7 (Bankruptcy) with the U.S. Bankruptcy Court. We have terminated this contract.  
   
   During the well testing portion of the contract, PFA had dropped their entire test pumping unit and pump column into the well. PFA was unsuccessful in the removal of this test pump.  
   
   During the period of January 20, 1994 to March 4, 1994, our Department secured the services of Roscoe Moss Hawaii, Inc., for the extraction of the pump. To date, there remains approximately 240 feet of the pump assembly lodged at the bottom of the well. Our legal counsel has contacted the bond company as to what direction the bond company wants to pursue. We are still waiting their decision.

...Water brings progress...
3. Honokohau Exploratory Well (4158-02) WCP ISSUED: 5/27/91
   PIP ISSUED: 1/29/93
   The drilling phase of this well has been completed. We will submit the well completion report to your office.
   Our Department has secured the pump installation permit. Bid opening for the outfitting of this well into a production source is scheduled for April, 1994.

4. Halekii Exploratory Well (3155-02) WCP ISSUED: 9/8/92
   PIP - NOT ISSUED
   The drilling phase of this well has been completed. We will submit the well completion report to your office.
   Our Department has filed for the pump installation permit. We are presently preparing the plans and specifications for the outfitting of this well into a production source. Our tentative target date for bid opening is August 1994.

Your follow-up efforts to maintain these projects on an active status will be appreciated. If there are any questions, please contact Mr. Gary Kawasaka.

H. William Sewake
Manager

GK
April 15, 1993

Mr. William W. Paty, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P.O. Box 621
Honolulu, HI 96809

WELL PERMITS

We are returning the signed permits for the following three (3) items:

1. Well Construction Permit
   Kealakehe-DWS Well
   Well No. 6146-01

2. Pump Installation Permit
   Honokohau-DWS Exploratory Well
   Well No. 4158-02

3. Pump Installation Permit
   Kalaa Well A
   Well No. 4358-01

We certainly appreciated your favorable approval to the three permit applications.

H. William Sewake
Manager

GK

Encs.
TO: Hawaii Department of Water Supply  
25 Aupuni Street  
Hilo, HI 96720

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a pump in Honokohau-DWS Exploratory Well (Well No. 4158-02) for municipal use is approved subject to the following conditions:

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

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

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 pump water from the 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 applicant shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting total water usage. Water usage shall be measured on a monthly basis and reported to the Commission.
5. The following shall be submitted to the Commission staff within 30 days after completion of the work:

a. Well Completion Report.

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

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

7. 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 two years from the date of permit issuance.

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

Date of Issuance

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: [Signature]

Printed Name: H. WILLIAM SEWACE

Firm or Title: DEPT OF WATER SUPPLY CH

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

Enc. (Well Completion form)

USGS
Department of Health
Safe Drinking Water Branch
Ground Water Protection Program
**WELL COMPLETION REPORT**

**INSTRUCTIONS:** Please print or type and submit completed report within 10 days of well completion to the Division of Water & Land Development, P.O. Box 313, Honolulu, HI 96806. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-7543, Hydrology. Geology Section for assistance.

<table>
<thead>
<tr>
<th>A. STATE WELL NO.</th>
<th>4158-02</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. WELL NAME</td>
<td>Honokohau Expl. Well</td>
</tr>
<tr>
<td>C. LOCATION</td>
<td>North Kona</td>
</tr>
<tr>
<td>D. WELI OWNER</td>
<td>County of Hawaii</td>
</tr>
<tr>
<td>E. TYPE OF RIG</td>
<td>Spencer Harris Rotary Rig</td>
</tr>
<tr>
<td>F. DATE OF COMPLETION</td>
<td>08/31/91</td>
</tr>
<tr>
<td>G. GROUND ELEVATION (m/s)</td>
<td>1674.51 ft.</td>
</tr>
<tr>
<td>H. TOTAL DEPTH OF WELL BELOW GROUND</td>
<td>1735 ft.</td>
</tr>
<tr>
<td>I. HOLE SIZE</td>
<td>26 inch dia. from 0 ft. to 1735 ft. below ground</td>
</tr>
<tr>
<td>J. CASING INSTALLED</td>
<td>1585'</td>
</tr>
<tr>
<td>K. ANNULUS</td>
<td>Grouted from 0 ft. to 1551 ft. below ground</td>
</tr>
<tr>
<td>L. PERMANENT PUMP INSTALLATION</td>
<td>na</td>
</tr>
<tr>
<td>M. PROPOSED USE</td>
<td>1565 ft. below ground</td>
</tr>
<tr>
<td>N. INITIAL WATER LEVEL</td>
<td>8 ppm</td>
</tr>
<tr>
<td>O. INITIAL CHLORIDE</td>
<td>03/18/91</td>
</tr>
<tr>
<td>P. PUMPING TESTS</td>
<td>GL which is elevation is 1674.51 ft.</td>
</tr>
</tbody>
</table>

**PROVING TESTS:** Reference point (R.P.) used:

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Temp. °F</th>
<th>Draw-down (ft.)</th>
<th>Ct. ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>08/12/91</td>
<td>1566.15 ft. below R. P.</td>
<td>1566.15 ft. below R. P.</td>
<td>1566.15 ft. below R. P.</td>
<td>10</td>
<td>638 to 662</td>
<td>694 to 699</td>
<td>1566.15 ft. below R. P.</td>
<td>699 to 740</td>
</tr>
</tbody>
</table>

**DRILLER'S LOG:**

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 to 28</td>
<td>Decomposed rock</td>
<td>Inter-flow void</td>
</tr>
<tr>
<td>28 to 83</td>
<td>Med. hard black pahoehoe</td>
<td>Med. soft, red a.a.</td>
</tr>
<tr>
<td>83 to 130</td>
<td>Clinkery &amp; broken a.a.</td>
<td>Med. hard black pahoehoe</td>
</tr>
<tr>
<td>130 to 184</td>
<td>Med. soft, black pahoehoe</td>
<td>Soft &amp; broken</td>
</tr>
<tr>
<td>184 to 230</td>
<td>Med. gray, dense lava</td>
<td>Med. hard, dense black lava rock</td>
</tr>
<tr>
<td>230 to 321</td>
<td>Soft red cinders</td>
<td>Med. dense gray/whit. lava rock</td>
</tr>
<tr>
<td>321 to 393</td>
<td>Clinkery, broken a.a</td>
<td>Med. dense black lava</td>
</tr>
<tr>
<td>393 to 479</td>
<td>Soft, red/gray cinders</td>
<td>Very soft clay - yellow/brown</td>
</tr>
<tr>
<td>479 to 599</td>
<td>Med. dense black lava rock</td>
<td>Very soft clay - yellow/brown</td>
</tr>
<tr>
<td>599 to 885</td>
<td>Hard dense pahoehoe</td>
<td>Very soft clay - yellow/brown</td>
</tr>
<tr>
<td>885 to 977</td>
<td>Med. clinkery rubble</td>
<td>Very soft clay - yellow/brown</td>
</tr>
</tbody>
</table>

**REMARKS:**

Submitted by (print) Blaise Clay

Title Drilling Superintendent

Signature

Date January 20, 1992
PUMPING TEST RECORD
for

HONOKOHANU Well A156-02

HAWAII Island Project or Job No. 8/12, 1971

Description of Well--

1. Elevation: ground surface 1674.51 ft., top of casing 1685.04 ft.,
   rotary table ft., referenced to benchmark.
2. Total depth of well 1735 ft.; or -60.47 ft. elevation, msl
3. 7.0 in. solid casing to 1585 ft. depth, perforated to 1715 ft. depth
4. Static water level on 8/12, 1971: 1566.5 ft. below ground surface,
   top of casing; or 107.96 ft. elevation msl measured _______ method

Description of Pump and Pump Setting--

5. Flower type pump with 22 stage bowl assembly
6. Gasoline diesel, electric power with _______ horsepower
7. Shaft speed: _______ rpm at _______ gpm flow
8. Depth of pump intake: 1711.75 ft. below Grade; or -37.24 ft. elev. msl
9. Depth of airline bottom: 1691.75 ft. below Grade; or -17.24 ft. elev. msl
10. Center of gage: _______ ft. elev., msl. Flow measured with _______ Spiegel Propeller Meter
11. Test conducted by M. Pavone, L. Surivaska, D. Suzuki

<table>
<thead>
<tr>
<th>Date &amp; Pumping Time</th>
<th>Sample No.</th>
<th>Pumping Rate (gpm)</th>
<th>Airline Pressure (PSI)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/12 9:50 a.m. 0</td>
<td>10</td>
<td>49.75</td>
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<tr>
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<td>49.75</td>
<td>49.75</td>
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<tr>
<td>10:00</td>
<td>10</td>
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<td>10:04</td>
<td>14</td>
<td>START UP</td>
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<td>10:04.20</td>
<td>14.22</td>
<td>45.5</td>
<td>45.5</td>
<td>9.82</td>
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<tr>
<td>10:06</td>
<td>16</td>
<td>44.15</td>
<td>44.15</td>
<td>11.6</td>
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<td>10:06.30</td>
<td>16.30</td>
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<tr>
<td>10:07</td>
<td>17</td>
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Sheet No. 1 of ______ Sheets
<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
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</thead>
<tbody>
<tr>
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<td>WATER REACT TOP</td>
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<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>9 ppm</td>
<td>71.0</td>
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<tr>
<td>10:20 n.m.</td>
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<tr>
<td>10:30 n.m.</td>
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<td>1500</td>
<td>46.0</td>
<td>8.7</td>
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<td>Pumping rate (gpm)</td>
<td>Airline (feet)</td>
<td>Drawdown (feet)</td>
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per Art A6c

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<tr>
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</table>

per Art A6c
MEMORANDUM

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

FROM: Don Hibbard, Administrator
State Historic Preservation Division

SUBJECT: State of Hawaii--Pump Installation Permit Application
(Well No. 4158-02), Honokohau
Honokohau 2, North Kona, Island of Hawaii
TMK: 7-4-5:2

HISTORIC PRESERVATION PROGRAM CONCERNS:

We have no records of any historic sites in the subject parcel. The parcel, however, is within the Kona Field historic district. Previous archaeological surveys in the upland portions of Kailua-Kona have recorded primarily agricultural field systems as well as habitation and human burial sites such as lava tubes and platforms. Hence, we recommend that the pump installation area and access roads be archaeologically surveyed to determine if significant historic sites are present. The results of the survey should be submitted to us for review in report format. Alternatively, we could make a determination of "no effect" by the pump installation on significant historic sites if documented evidence exists that show the area has undergone extensive surface modification in recent times and thereby destroying any surface historic sites. Until then, we recommend that your office make no decision on the subject application.

If you have any questions, please contact Kanalei Shun at 587-0047.

KS:jle
DIVISION OF WATER RESOURCE MANAGEMENT

FROM: __________________________ DATE: __/__/91 FILE IN: __________________________

TO: INITIAL: __________________ PLEASE: __________________ REMARKS: __________________

☐ G. AKITA ☐ L. Nanbu □ See Me
☐ E. Sakoda □ Take Action By☐ Route to Your Branch
☐ G. Matsumoto □ Review & Comment
☐ E. Lau □ Draft Reply
☐ L. Chang □ Acknowledge Receipt
☐ Y. Shiroma □ Xerox ______ copies
☐ __________________________ □ File
☐ __________________________ □ Mail

☑ __________________________ FOR YOUR:

☐ ______ approval
☐ ______ signature
☐ ______ information

☐ ______ M. TAGOMORI
☐ ______ S. Kokubun
December 17, 1991

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

Dear Mr. Tagomori:

SUBJECT: PUMP INSTALLATION PERMIT APPLICATION  
HONOKOHU-DWS WELL  
STATE WELL NO. 4158-02  
HONOKOHU, HAWAII

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

1. The application indicates that the subject well will be for municipal 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 Hawaii 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.
4. The operation of the well should not be allowed to adversely affect the water quality of nearby wells. The map accompanying the application indicates that the proposed well will be located within 2,000 feet of state well no. 4158-01.

If you should have any questions, please contact the Stuart Yamada of the Safe Drinking Water Branch at 586-4258.

Sincerely,

THOMAS E. ARIZUMI, P.E., Chief
Environmental Management Division

SY:ch1

c: Mr. H. William Sewake
Manager
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720
December 13, 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 proposed well being constructed.  

1. Kealakehe-DWS, Well No. 4057-04  
   TMK:  7-4-3: por. 5  

2. Honokohau-DWS, Well No. 4158-02  
   TMK:  7-4-5: 2  

3. Mauna Lani Irrigation, Well No. 5651-01  
   TMK:  6-8-01: 52  


ROBERT K. YANABU, Division Chief  
Engineering Division  

GR:byf
Mr. Clayton H. W. Hee  
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. Hee:

**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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<tbody>
<tr>
<td>Hawaii</td>
<td>Kealakehe-DWS</td>
<td>4057-04</td>
<td>Well Construction</td>
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<td>Honokohau-DWS</td>
<td>4158-02</td>
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<td>Hawaii</td>
<td>Mauna Lani Irrigation</td>
<td>5651-01</td>
<td>Pump Installation</td>
</tr>
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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, ten (10) working days from date of this letter.

Should you have any questions, please contact Manabu Tagomori, Deputy Director at 587-0214.

Very truly yours,

[Signature]

WILLIAM W. PATY

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

Dear Mr. Sewake:

We have received your applications for two permits; one to construct a well (Well No. 4057-04) at Kealakehe, (TMK 7-4-03:05) and the other to install a pump in a well (Well No. 4158-02) at Honokohau, (TMK 7-4-05:02). We are reviewing the applications for completeness.

Should you have questions, please call the Division of Water Resource Management at 587-0225.

Sincerely,

MANABU TAGOMORI
Deputy Director

NF:fc
Mr. Thomas Arizumi, Chief  
Environmental Management Division  
State Department of Health  
Five Waterfront Plaza  
500 Ala Moana Blvd., Suite 250  
Honolulu, Hawaii 96813  

Attn: Mr. William Wong  

Dear Mr. Arizumi:  

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, ten (10) working days from date of this letter.  

Should you have any questions, please contact the Division of Water Resource Management at 587-0225.

Sincerely,  

[Signature]  
MANABU TAGOMORI  
Deputy Director  

NP:fc  
Enc.
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, ten (10) working days from date of this letter.

Should you have any questions, please contact the Division of Water Resource Management at 587-0225.

Sincerely,

[Signature]

MANABU TAGOMORI
Deputy Director

NF:fc
Enc.
Ms. Marjorie Ziegler  
Sierra Club Legal Defense Fund, Inc.  
212 Merchant Street, Room 202  
Honolulu, Hawaii 96813

Dear Ms. Ziegler:

Well Construction and Pump Installation Permit Application(s)

Transmitted for your information are copies of recent well permit application(s):

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Should you have questions, please contact the Division of Water Resource Management at 587-0225.

Sincerely,

[Signature]

MANABU TAGOMORI  
Deputy Director

NF:fc  
Enc.
DEC - 4 1991

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, ten (10) working days from date of this memo.

Should you have any questions, please contact the Division of Water Resource Management at 587-0225.

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

Dear Mrs. 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, ten (10) working days from date of this letter.

Should you have any questions, please contact Manabu Tagomori, Deputy Director at 587-0214.

Very truly yours,

WILLIAM W. PATY

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

PUMP INSTALLATION PERMIT
HONOKOHU PRODUCTION WELL
WELL NO. 4158-2
TAX MAP KEY 7-4-5:2

We are submitting the subject application for your review and approval.

Should you have any questions, please contact our Water Resources and Planning Section.

William Sewake
Manager

Enc.

...Water brings progress...
DIVISION OF WATER RESOURCE MANAGEMENT

FROM: ___________________________ DATE: __________ FILE IN: ___________________________

TO: INITIAL: ___________________________ PLEASE: ___________________________

[ ] G. AKITA
[ ] L. Nanbu
[ ] See Me

[ ] E. Sakoda
[ ] G. Matsumoto
[ ] Take Action By

[ ] G. Matsumoto
[ ] E. Lau
[ ] Route to Your Branch

[ ] L. Chang
[ ] Y. Shiroma
[ ] Review & Comment

REMARKS: ___________________________

[ ] G. Matsumoto
[ ] E. Lau
[ ] Draft Reply

[ ] L. Chang
[ ] Y. Shiroma
[ ] Acknowledge Receipt

[ ] Y. Shiroma
[ ] Xerox ________ copies

[ ] E. Sakoda
[ ] File

FOR YOUR: ___________________________

[ ] E. Sakoda
[ ] Mail

[ ] G. Matsumoto
[ ] Approved

[ ] L. Nanbu
[ ] Signature

[ ] Y. Shiroma
[ ] Information

[ ] Y. Shiroma
[ ] Information

[ ] Y. Shiroma
[ ] Information
TO: County of Hawaii  
Department of Water Supply  
25 Aupuni Street  
Hilo, HI 96720

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test DWS-Honokohau Well (Well No. 4158-02) for municipal use, is approved subject to the following conditions:

1. The proposed well construction shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to construct 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.

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

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

4. The following shall be submitted to DWRM, P.O. Box 373, Honolulu, Hawaii 96809, within 30 days after completion of the well:
WELL CONSTRUCTION PERMIT
Well No. 4158-02

a. Well Completion Report.

b. Elevation (referenced to mean sea level) survey by a Hawaii-licensed surveyor.

c. As-built sectional drawing of the well.

d. Plot plan and map showing the exact location of the well.

e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and water quality data.

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

6. This permit may be revoked if work is not started within six months of 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.

MAY 29 1991
Date of Issuance

cc: USGS
Department of Health
Safe Drinking Water Branch
Ground Water Protection Program

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management
County of Hawaii
Department of Water Supply
25 Aupuni Street
Hilo, HI 96720

Dear Applicant:

The Commission on Water Resource Management will be acting on your permit application(s) at its meeting on May 15, 1991, at 9:00 a.m., at the Wailuku Community Center, Wailuku, Maui.

The agenda and submittal(s) concerning your application(s) are enclosed for your information.

You or your representative are invited to attend the meeting.

Sincerely,

MANABU TAGOMORI
Deputy Director

ES:fc
Encl.
<table>
<thead>
<tr>
<th>Depth Interval (ft.)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1090</td>
<td>No sample collected</td>
</tr>
<tr>
<td>1090-1100</td>
<td>Black ashy soil (?) contains some clay</td>
</tr>
<tr>
<td>1100-1140</td>
<td>No sample collected</td>
</tr>
<tr>
<td>1140-1145</td>
<td>Gray pahoehoe transitional to aa</td>
</tr>
<tr>
<td>1145-1270</td>
<td>No sample collected</td>
</tr>
<tr>
<td>1270-1280</td>
<td>Gray pahoehoe containing weathered olivine phenocrysts and covered with a coating of Fe-oxide.</td>
</tr>
<tr>
<td>1280-1290</td>
<td>Brown-gray pahoehoe--some vesicles lined and filled with yellow clay.</td>
</tr>
<tr>
<td>1290-1300</td>
<td>No sample collected</td>
</tr>
<tr>
<td>1300-1310</td>
<td>Dense gray aa</td>
</tr>
<tr>
<td>1310-1320</td>
<td>Mixture of medium gray and brown-gray vesicular aa containing minor plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1320-1330</td>
<td>Medium gray dense aa</td>
</tr>
<tr>
<td>1330-1340</td>
<td>Mixture of light gray and dark gray pahoehoe containing minor plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1340-1350</td>
<td>Medium gray pahoehoe containing laths of plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1350-1360</td>
<td>Brown-gray aphyric pahoehoe</td>
</tr>
<tr>
<td>1360-1370</td>
<td>Medium gray pahoehoe transitional to aa</td>
</tr>
<tr>
<td>1370-1380</td>
<td>Medium gray dense aa</td>
</tr>
<tr>
<td>1380-1390</td>
<td>Mixture of brown-gray pahoehoe with plagioclase phenocrysts and medium gray</td>
</tr>
<tr>
<td>Time</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1390-1400</td>
<td>Dense aa with plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1400-1410</td>
<td>Medium gray aa with plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1410-1420</td>
<td>Mixture of plagioclase-phyric aa and aphyric pahoehoe.</td>
</tr>
<tr>
<td>1420-1440</td>
<td>Mixture of plagioclase-phyric pahoehoe and medium gray dense aa.</td>
</tr>
<tr>
<td>1440-1450</td>
<td>No sample collected</td>
</tr>
<tr>
<td>1450-1460</td>
<td>Mixture of plagioclase-phyric pahoehoe and medium gray dense aa.</td>
</tr>
<tr>
<td>1460-1470</td>
<td>Medium gray plagioclase-phyric aa</td>
</tr>
<tr>
<td>1470-1480</td>
<td>Brown-gray aa containing minor plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1480-1490</td>
<td>Dense gray pahoehoe with small round vesicles.</td>
</tr>
<tr>
<td>1490-1500</td>
<td>Mixture of tan aa clinker and gray aphyric aa.</td>
</tr>
<tr>
<td>1500-1510</td>
<td>Mixture of brown pahoehoe and gray aphyric aa.</td>
</tr>
<tr>
<td>1510-1520</td>
<td>Gray pahoehoe</td>
</tr>
<tr>
<td>1520-1530</td>
<td>Mixture of brown pahoehoe containing minor weathered plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1530-1540</td>
<td>No sample collected.</td>
</tr>
<tr>
<td>1540-1550</td>
<td>Dark gray pahoehoe</td>
</tr>
<tr>
<td>1550-1570</td>
<td>Brown-gray plagioclase-phyric pahoehoe with olivine and plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1570-1580</td>
<td>Dark gray pahoehoe containing olivine and plagioclase phenocrysts.</td>
</tr>
<tr>
<td>Time Range</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1580-1590</td>
<td>Reddish-brown plagioclase-phyric pahoehoe</td>
</tr>
<tr>
<td>1590-1600</td>
<td>Gray plagioclase-phyric pahoehoe</td>
</tr>
<tr>
<td>1600-1620</td>
<td>Mixture of dark gray and medium gray pahoehoe containing phenocrysts of olivine and plagioclase.</td>
</tr>
<tr>
<td>1620-1630</td>
<td>Mixture of dark gray aa containing olivine phenocrysts and aa containing plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1630-1640</td>
<td>Slightly weathered gray aa with small vesicles filled with clay.</td>
</tr>
<tr>
<td>1640-1650</td>
<td>Dark gray pahoehoe containing minor plagioclase phenocrysts.</td>
</tr>
<tr>
<td>1650-1660</td>
<td>Dark gray pahoehoe transitional to aa containing minor plagioclase phenocrysts 1-2 mm long.</td>
</tr>
<tr>
<td>1660-1670</td>
<td>Dark gray pahoehoe containing rare large olivine phenocrysts 5 mm across and plagioclase phenocrysts 1-2 mm across.</td>
</tr>
<tr>
<td>1670-1680</td>
<td>Light gray pahoehoe</td>
</tr>
<tr>
<td>1680-1690</td>
<td>Mixture of dark gray pahoehoe and medium gray dense aphyric aa.</td>
</tr>
<tr>
<td>1690-1700</td>
<td>Dark gray aa containing olivine phenocrysts.</td>
</tr>
<tr>
<td>1700-1710</td>
<td>Same as above, except lighter gray.</td>
</tr>
<tr>
<td>1710-1720</td>
<td>Medium gray aphyric pahoehoe</td>
</tr>
<tr>
<td>1720-1730</td>
<td>Red-brown pahoehoe</td>
</tr>
<tr>
<td>1730-1740</td>
<td>Brown-gray pahoehoe</td>
</tr>
<tr>
<td>1740-1745</td>
<td>Mixture of brown-gray aphyric pahoehoe and dense gray aphyric aa</td>
</tr>
<tr>
<td>1745-1820</td>
<td>No sample collected.</td>
</tr>
</tbody>
</table>
1820-1840  
Gray slightly vesicular aphyric aa.
View from Well 4158-02 to coast.
MEMORANDUM

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

FROM:     Don Hibbard, Administrator
State Historic Preservation Division

SUBJECT:  Well Construction Permit Application -- Drilling,
Casting and Testing Exploratory Well (Dept. of Water
Supply, Hawaii County)
Honokohau, North Kona, Hawaii
TMK:      7-4-05: 2

HISTORIC PRESERVATION PROGRAM CONCERNS:

We need more information before we can determine that construction
of this proposed well will have "no effect" on historic sites.
According to our records, no archaeological survey has taken place
in the project area but we feel that the probability of historic
remains is high. At these elevations in this part of Kona,
numerous agricultural and residential features (stone walls,
platforms, planting mounds, residential features) have been found.

Before issuing the permit, we ask that the applicant do one of the
following: has an archaeological inventory done of the project
area to assure that construction activities will have "no effect"
on historic sites or submit documents which demonstrate that the
ground surface has been so altered that historic remains are
unlikely.

If you have any questions about this review, please contact
Holly McEldowney at 587-0008.
March 22, 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
DWS-HONOKOHAI WELL
STATE WELL NO. 4158-02
HONOKOHAI, HAWAII

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

1. The application indicates that the subject well will be for municipal 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.
4. The operation of the well should not be allowed to adversely affect the water quality of nearby wells. The map accompanying the application indicates that the proposed well will be located within 2,000 feet of state well no. 4158-01.

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: H. William Sewake, Manager
Department of Water Supply
County of Hawaii
25 Aupuni Street
Hilo, Hawaii 96720
March 18, 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 applications and have no objections to the following proposed wells being constructed:

1. DWS-Honokohau Exploratory Well
   Well No. 4158-02
   TMK: 7-4-05:02

2. DWS-Pihonua Well 3 Exploratory
   Well No. 4208-01
   TMK: 2-5-09:03

3. DWS-Waiaha Exploratory Well
   Well No. 3858-01
   TMK: 7-5-14:16

The following proposed well will be constructed within a one-quarter mile radius from an existing drywell, as shown on the attached map. The proposed well should be relocated and resubmitted for further review.

1. Waimea Golf Course Well
   Well No. 6235-01
   TMK: 4-7-07:17

Since this department does not keep track of privately owned drywells, your department should verify the presence of any private drywells in these areas.

ROBERT K. YANABU, Division Chief
Engineering Division

Attachment

CKY:st
March 19, 1991

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
APPLICANT: DWS-HONOKOHU EXPL. WELL - 4158-02; DWS-PIIHONUA WELL 3 EXPL. - 4208-01; DWS-WAIAHA EXPL. WELL - 3858-01; WAIMEA GOLF COURSE WELL - 6235-01

We have reviewed the subject applications and have no comments.

[Signature]
H. William Sewake
Manager

WA

...Water brings progress...
Mr. H. William Sewake  
Manager  
County Of Hawaii  
Department Of Water Supply  
25 Apuni Street  
Hilo, Hawaii 96720

Dear Mr. Sewake:

We have received your applications to construct and test the following exploratory wells:

<table>
<thead>
<tr>
<th>WELL NAME</th>
<th>WELL NO.</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>DWS-Waiaha</td>
<td>3857-01</td>
<td>North Kona</td>
</tr>
<tr>
<td>DWS-Honokohau</td>
<td>4158-02</td>
<td>North Kona</td>
</tr>
<tr>
<td>DWS-Piihonua No. 3</td>
<td>4208-01</td>
<td>South Hilo</td>
</tr>
</tbody>
</table>

We are reviewing the applications for completeness.

Should you have questions, please call the Regulation Branch of the Division of Water Resource Management at 548-7541.

Sincerely,

[Signature]

MANABU TAGOMORI  
Deputy Director

NF: mh
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)

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>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>DWS-Honokohau Expl. Well</td>
<td>4158-02</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>DWS-Piihonua Well 3 Expl.</td>
<td>4208-01</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>DWS-Waiaha Expl. Well</td>
<td>3858-01</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Waimea Golf Course Well</td>
<td>6235-01</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Oahu</td>
<td>Kuilima Resort Golf Course</td>
<td>4159-03</td>
<td>Well and Pump</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 March 29, 1991.

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

DN: bm
Enc.
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):

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>DWS-Honokohau Expl. Well</td>
<td>4158-02</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>DWS-Piihonua Well 3 Expl.</td>
<td>4208-01</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>DWS-Waiaha Expl. Well</td>
<td>3858-01</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Waimea Golf Course Well</td>
<td>6235-01</td>
<td>Well and Pump</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 March 29, 1991.

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

Sincerely,

MANABU TAGOMORI  
Deputy Director

DN:bm  
Enc.
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)

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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</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>DWS-Honokohau Expl. Well</td>
<td>4158-02</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>DWS-Piihonua Well 3 Expl.</td>
<td>4208-01</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>DWS-Waiaha Expl. Well</td>
<td>3858-01</td>
<td>Well and Pump</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Waimea Golf Course Well</td>
<td>6235-01</td>
<td>Well and Pump</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 March 29, 1991.

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

Sincerely,

MANABU TAGOMORI
Deputy Director

DN:bm
Enc.
APPLICATION FOR

WELL CONSTRUCTION PERMIT  
PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 375, Honolulu, Hawaii 96808. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7142. Geography/Geology Section for assistance.

1. WELL LOCATION/NAME   HONOKOHAU, NORTH KONA, HAWAII/HONOKOHAU WELL
   Island   HAWAI I  
   Tax Map Key   7-4-05:2  
   Address  
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER
   County of Hawaii  
   Firm Name Department of Water Supply  
   Contact Person H. William Sewake  
   Address 25 Aupuni Street, Hilo, HI 96720  
   Phone (808) 969-1421  

   LANDOWNER
   Firm Name Palani Land Trust II  
   Contact Person c/o Robert D. Triantos  
   Address and Ichiki  
   P.O.:Box 1720, Kailua-Kona, HI 96745-1720  
   Phone (808) 329-6464

3. PROPOSED CONTRACTOR FOR:  □ Well Drilling  □ Pump Installation
   Name Water Resources International, Inc.  
   Address 22822 Paa Street, Suite 2085  
   Honolulu, HI 96819  
   Phone 383-7727  
   Contractor's License No. AC-5058

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

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

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

Well Owner (print)  ____________________________  Landowner (print)  ____________________________
Signature  ____________________________  Date  ____________________________

For Official Use Only:

Field Checked By  ____________________________  Latitude  ____________________________  Hydrologic Unit
Date  ____________________________  Longitude  ____________________________  State Well No. 4150-02
Quad Map No. H-7
Briefly describe the proposed work:

Drilling, casing, and testing of a well at elevation 1662 + feet mean sea level.

---

**PROPOSED SECTION OF WELL**

<table>
<thead>
<tr>
<th>Elevation at top of casing</th>
<th>1662.5 ft., msl.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cement Grout</td>
<td>1647 ft.</td>
</tr>
<tr>
<td>Hole Dia.</td>
<td>26 in. minimum</td>
</tr>
<tr>
<td>Total Depth</td>
<td>1747 ft.</td>
</tr>
<tr>
<td>Filter</td>
<td>Rock Packing 75 ft.</td>
</tr>
</tbody>
</table>

**Ground Elev.** 1662 + ft., msl*

**Solid Casing:**
- Material: Steel, ASTM A242
- Length: 1662 ft.
- Diameter: 20 in.
- Wall thickness: 0.3125 in.

**Casing:** /Perforated /Screen
- Material: Steel, ASTM A-242
- Length: 60 + ft.
- Diameter: 20 in.
- Wall thickness: 0.3125 in.
- Openings: 100 sq. in./L.F.

**Open Hole:**
- Length: 25 in.
- Diameter: 19 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

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 96822. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 808-753-1130, Hydrology/Groundwater Section for assistance.

1. WELL LOCATION/NAME

Department of Water Supply, Honokohau Production Well No. 4158-2

Island: Hawaii

Tax Map Key: 7-4-5:2

Address:

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

2. WELL OWNER

Department of Water Supply

Firm Name: County of Hawaii

Contact Person: H. William Sewake

Address: 25 Aupuni Street, Hilo, HI 96720

Phone: (808)969-1421

LANDOWNER

Firm Name: Palani Land Trust II

Contact Person: C/O Robert D. Triantos

Address: Carlsmith Wichman Case Mukai & Ichiki P.O. Box 1720, Kailua-Kona, HI 96745-1720

Phone: (808) 329-6464

3. PROPOSED CONTRACTOR FOR:

- Well Drilling
- Pump Installation

Name: Not determined at this time

Address:

Contractor's License No.: 

Phone:

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.)
- Domestic (individual, noncommercial water systems)
- Irrigation (specify)
- Industrial
- Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL: 1,440,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: Vertical Turbine

Motor: Diesel

Rated Pump Capacity: 1,000 gallons per minute (gpm)

Well Owner (print): H. William Sewake

Signature: ______________________

Date: 11/6/91

Landowner (print):

Signature: ______________________

Date: ______________________

For Official Use Only:

Field Checked By: ______________________

Latitude: ______________________

Hydrologic Unit: ______________________

State Well No.: 4158-02

Longitude: ______________________
Briefly describe the proposed work:
Installation of a 1,000-gpm submersible pump.

PROPOSED SECTION OF WELL

Elevation at top of casing 1662.5 ft., msl.

Ground Elev. 1662 ft., msl

Cement Grout 1647 ft.

Solid Casing:
Material Steel, ASTM A242
Length 1662 ft.
Diameter 20 in.
Wall thickness 0.3125 in.

Hole Dia. 26 in. minimum

Casing: */Perforated */Screen
Material Steel, ASTM A242
Length 60 ft.
Diameter 20 in.
Wall thickness 0.3125 in.
Openings 100 sq. in./L.F.

Total Depth 1747+ ft.

Open Hole:
Length 25
Diameter 19 in.

Rock Packing 75 ft.

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