**CHECKLIST**

**WELL CONSTRUCTION PERMIT**

**WELL NAME or LOCATION:** Keel   
**ISLAND:** Hawaii

**WELL NUMBER:** 2752-03  
**Tax Map Key:** B-3-11-08

**OWNER/OPERATOR:**
- **Firm Name:** State Div. of Water and Land Res.
- **Contact Person:** Nancy Tanigawa
- **Address:** 1151 Punchbowl St., Rm 227
- **Phone:** 587-0290

**LANDOWNER:**
- **Firm Name:** B.P. Bishop Estate
- **Contact Person:** I. Ueda
- **Address:** 78-6831 Alii Drive, Suite 232
- **Phone:** 322-6088

<table>
<thead>
<tr>
<th>Date application received</th>
<th>7-7-92</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date acknowledged receipt/request more info</td>
<td>7-22-92</td>
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<td>Date application accepted</td>
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<tr>
<td>Date filing fee deposited</td>
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<tr>
<th>Application sent to following:</th>
<th>Date sent</th>
<th>Comments received</th>
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</thead>
<tbody>
<tr>
<td>Dept. of Hawn Home Lands</td>
<td>7-21-92</td>
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<tr>
<td>Dept. of Health</td>
<td>7-22-92</td>
<td></td>
</tr>
<tr>
<td>Office of Hawn. Affairs</td>
<td>7-21-92</td>
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<tr>
<td>State Hist Pres Div</td>
<td>7-22-92</td>
<td></td>
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<tr>
<td>Dept/Bd of Water Supply</td>
<td></td>
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<tr>
<td>Sierra Club L. D. F.</td>
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<td>Keelauola No #36 (Oahu)</td>
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<tr>
<td>Dept.Pub. Wrks (Hawaii)</td>
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<td>Additional List (Molokai)</td>
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<tr>
<td>Eric Aikawa/Lyman</td>
<td></td>
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</tbody>
</table>

| Date agenda due | 2 Sep 92 |
| Date submittal due | 2 Sep 92 |
| Date submittal sent to applicant |         |

**Date application approved or disapproved:** 16 Sep 92

**Date applicant notified of decision:**

**REMARKS:**

[Blank space for remarks]
CHECKLIST

WELL CONSTRUCTION PERMIT  PUMP INSTALLATION PERMIT

WELL NAME or LOCATION: 

WELL NUMBER: 2753-03

OWNER or OPERATOR: D.V.

ADDRESS: 

TELEPHONE(contact person):  

Date application received: 4-30-90

Date acknowledged receipt/request more info: 

Date application accepted: 

Suspense date (90 days): 

Date filing fee deposited: 

Application sent to following: 

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<tr>
<th>Department</th>
<th>Date sent</th>
<th>Comments received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Health</td>
<td>5-4-90</td>
<td>5-31-90</td>
</tr>
<tr>
<td>County water board/dept</td>
<td>4-29-90</td>
<td>5-9-90</td>
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<tr>
<td>DHHL</td>
<td>5-3-90</td>
<td>5-25-90</td>
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</tbody>
</table>

Date agenda due: 

Date submittal due: 

Date submittal sent to applicant: 

Date application approved or disapproved: 6-27-90

Date applicant notified of decision: 7-3-90

REMARKS: 

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________

__________________________________________________________________________________________
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

The State of Hawaii Department of Land and Natural Resources, Division of Water and Land Development, is the contracting agency for Honokaa Well A (Well No. 6428-01) and for Keel Well 4 (Well No. 2753-03). We have requested that department to submit the requested reports to your office.

In regard to the other two wells, we have requested Water Resources International, Inc., to submit the well completion report for Honokohau (Well No. 4158-02) to your office right away. The Waiaha Exploratory Well (Well No. 3857-01) still remains to be completed. Our legal counsel is pursuing a court settlement for the calling of the performance bond. As you recall, the contractor, Paul Frandsen & Associates, filed for Chapter 7 under the Federal Bankruptcy Act. We terminated the contract and initiated the steps for calling of the bond.

Milton D. Pavao, P.E.
Manager

GK

...Water brings progress...
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 Keei 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
A bankrupt well digger leaves county in a hole

BANKRUPT: Well snafu leaves county in a hole

From Page 1

complete the Piihonua project, according to court records.

The county told Frandsen to start work on the Waiaha Well Exploratory Drilling project in North Kona in late 1990, according to Water Department Manager Milton Pavao.

Frandsen had done a satisfactory job on at least one other drilling project in Kurtistown before the firm landed the Kona, Honokaa and Piihonua jobs, Pavao said.

Frandsen was finished drilling and was about to test the new well when the test pump dropped down the shaft, became tightly wedged and brought the project to a halt, Pavao said.

Pavao said he has no idea how much it will cost to remove the pump, but says the well is useless until the pump is out.

Frandsen was paid about $811,000 for the Kona well and about $378,000 for the Piihonua Well before the firm folded.

The Water Commission always requires contractors to purchase bonds — essentially insurance policies — that will pay to finish public projects if the contractors can't for some reason.

Frandsen submitted bonds for its projects, but Pavao declined to comment on the problems with the bonds. He referred questions about the bond disputes to Water Commission lawyer Sherman Hee.

Hee was unavailable for comment.

Draft minutes of the Water Commission's Dec. 21 meeting indicate Hee told the commission National American Insurance Company is arguing the bond was issued by an agent "without authorization."

The premiums to purchase the bond were paid, but the money was never actually received by the insurance company, according to the Water Commission minutes.
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.
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 Pihonua 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 HAWAI'I:

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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<tr>
<th>JOB NO. AND PROJECT</th>
<th>NOTICE TO PROCEED</th>
<th>COMPLETION DATE</th>
<th>FUND</th>
<th>INSP.</th>
<th>CONTR. PRICE/ CONTRACT AMT</th>
<th>PAYMT. TO DATE</th>
<th>COMPLD. TO PREV.</th>
<th>REMARKS</th>
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<td>94-589, Isaac Hale Beach Park Waterline Improvements</td>
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<td></td>
<td>Paul Frandsen</td>
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<td>25,000.00</td>
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<td>72,000.00</td>
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<td>SOUTH HILLO (continued)</td>
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<td>94-599, Furnishing and Delivering, Water Meters, Brass Goods, Fire Hydrants, Automatic Control Valves and Chlorinators</td>
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<td>HAMAKUA:</td>
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<td>90-531, Paauilo Well Development WCR?</td>
<td>Glover</td>
<td>12/28/92</td>
<td>03/18/94</td>
<td>DWS 60</td>
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<td>94-598 Removal of Eucalyptus Trees at Ahualoa Sawmill Tank Site</td>
<td>Jacunski</td>
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<td>10,290.00</td>
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<td>710.00</td>
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<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 State</td>
<td>324,240.00</td>
<td>274,997.81</td>
<td>87.84</td>
<td>Connection at Hawi Reservoir site completed. Connection at Hawi Mill Road/ Hawi-Mahukona Road to be scheduled soon.</td>
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<td>48,660.00</td>
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<td>89-504, Waiaha Well Exploratory Drilling</td>
<td>Paul Frandsen</td>
<td>11/05/90</td>
<td>10/20/91</td>
<td>DWS</td>
<td>GS</td>
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91-539, Honokohau Production Well and Supporting Facilities, PART II

| 89-(458-02) | Coluccio | 11/01/93 | 06/29/94 | DWS | FE | 737,797.00 | 715,172.80 | 100 | All work completed. Final payment being processed. |
| Sonomura | 07/27/94 | 07/21/95 | DWS | FE | 1,971,400.00 | 106,868.78 | 6 | Site work and under tank piping being done. |
| 91-91, Honokohau Production Well and Supporting Facilities, PART I |

MISCELLANEOUS:

Kohala Coast Transmission System

Vehicle Bid No. 94-1, Furnishing and Delivering Motors Vehicle to the DWS

| Hawaii | 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

<table>
<thead>
<tr>
<th>JOB NO. AND PROJECT</th>
<th>CONTR.</th>
<th>NOTICE TO PROCEED DATE</th>
<th>COMPL. TO COMPL.</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOUTH KONA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8-HW-D, Keai Well 4</td>
<td>KKRC</td>
<td>10/01/92 06/27/93</td>
<td>DLNR MO 633,142.00</td>
<td>100 100 Pump efficiency test due 11/09/94.</td>
</tr>
<tr>
<td>Development S (2753-03)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HAMAKUA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>48-HW-D, Honokaa Well A</td>
<td>Paul Frandsen</td>
<td>10/16/89 07/12/90</td>
<td>State MO 724,530.00 25,470.00 750,000.00</td>
<td>94 94 State working with Bonding Company to complete project.</td>
</tr>
<tr>
<td>Permit issued 5-25-89</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PUNA:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11-16-7019, Mt. View</td>
<td>Rimrock</td>
<td>07/05/94 12/23/94</td>
<td>State DWS 1,114,705.00 (357,705.00)</td>
<td>50 40 Connection at Station No. 1 completed but not connected to new 12&quot; waterline. Pressure testing new 12&quot; waterline.</td>
</tr>
<tr>
<td>Elementary School Off-Site Waterline Improvements (DAGS)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COUNTY PROJECTS:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P-2908 Kaloko Water Tank</td>
<td>Glover</td>
<td>09/30/92 10/12/94</td>
<td>DPW GS 4,367,000.00</td>
<td>75 70 Contractor working on booster pump piping and control buildings.</td>
</tr>
</tbody>
</table>
TO: Mrs. Rae M. Loui, Deputy Director  
Commission on Water Resource Management

FROM: Manabu Tagomori, Manager-Chief Engineer

SUBJECT: Well Permit for Job No. 8-HW-D, Keea Well A (Well No. 2753-03), Keea, South Kona, Hawaii

Transmitted for your use is a signed copy of the Pump Installation Permit for the subject project.

Should you have any questions, please contact Mr. Edward Lau of the Project Development Branch at Extension 70227.

SL:lc

Enc.
PUMP INSTALLATION PERMIT

for

Keei Well 4
Well No. 2753-03
Keei, South Kona, Hawaii

TO: Division of Water & Land Development
1151 Punchbowl Street, Room 227
Honolulu, HI 96813

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 Keei Well 4 (Well No. 2753-03), 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 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.

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

4. The applicant shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting total water usage. 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
SEP 29 1992
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]
Date: 10/11/91

Printed Name: [Name]

Firm or Title: [Firm or Title]

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

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

TO: Mr. Manabu Tagomori
Manager-Chief Engineer, DOWALD

FROM: Rae M. Loui

SUBJECT: Draft EA’s for Development of Keei Well 4, Puukapu Shallow Well, and Hualalai Well

As requested, we have reviewed your draft environmental assessments for the development of the subject wells on the Big Island.

Our records indicate that well construction permit applications for the Keei and Puukapu wells were submitted and subsequently approved by the Commission on Water Resource Management. Your application for the construction of the Hualalai Well is undergoing processing and will be brought before the Commission in the near future.

Please ensure that the necessary permits are on hand before proceeding with work on the three wells.
NEW WELL NO. 2753-03
OLD WELL NO.
DATE DRILLED 1992
DRILLER KEEI4
DATE OF TEST 12/04/92
ACTIVE LENGTH OF WELL BORE 360.0 FEET
WELL RADIUS 9.0 INCHES

FIELD PUMPING TEST DATA:

<table>
<thead>
<tr>
<th>PUMPING RATE, Q (GPM)</th>
<th>STEADY-STATE DRAWDOWN, S (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1477.</td>
<td>3.47</td>
</tr>
<tr>
<td>1801.</td>
<td>4.62</td>
</tr>
</tbody>
</table>

THE FOLLOWING EQUATION EXPRESSES THE BEST FIT CURVE TO THE FIELD DATA:

\[ S = 1.3652 \times 10^{-3} Q + 6.6631 \times 10^{-7} Q^{2.0} \]

CORRELATION COEFFICIENT = 1.0000

<table>
<thead>
<tr>
<th>PUMPING RATE Q (GPM)</th>
<th>AQUIFER LOSSES B * Q (FEET)</th>
<th>WELL LOSSES C * Q^{2.0} (FEET)</th>
<th>TOTAL LOSSES S (FEET)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1477.</td>
<td>2.02</td>
<td>1.45</td>
<td>3.47</td>
</tr>
<tr>
<td>1801.</td>
<td>2.46</td>
<td>2.16</td>
<td>4.62</td>
</tr>
</tbody>
</table>

\[
\text{Main: } 154,758 \text{ ft}^3/ \text{d}
\]

\[
\frac{T}{150} = \frac{Q}{2.2} \Rightarrow T = 146,628 \text{ ft}^3/ \text{d}
\]
PUMP INSTALLATION PERMIT

for

Keei Well 4
Well No. 2753-03
Keei, South Kona, Hawaii

TO: Division of Water & Land Development
1151 Punchbowl Street, Room 227
Honolulu, HI 96813

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 Keei Well 4 (Well No. 2753-03), 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.

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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
SEP 29 1992
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: __________________________ Date: __________

Printed Name: ____________________________________________

Firm or Title: ______________________________________________

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

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

TO: Rae M. Loui, Deputy for Water Resource Management
Commission on Water Resource Management

FROM: Don Hibbard, Administrator
State Historic Preservation Division

SUBJECT: New Pump Installation Permit Application -- Keel Well 4,
Well No. 2753-03
Keel, South Kona, Island of Hawaii

HISTORIC PRESERVATION PROGRAM CONCERNS:

Our inter-agency archaeologist, Carol Kawachi, conducted a field check of the subject parcel on July 6, 1992. It was determined that despite the very disturbed nature of the parcel, a historic site containing remnants of retaining walls and terraces were still evident within the project parcel. These walls and terraces are dryland agricultural features of the Kona Field System, a historic district determined to be eligible for nomination to the National Register of Historic Places. The Kona Field System covers an extensive area from North to South Kona.

As a result of Ms. Kawachi's field check, our office determined that an archaeological inventory level survey was required to identify the remnant historic sites in the property. The initial phase, a pedestrian survey, of the inventory survey was conducted on July 22, 1992, by Ms. Kawachi and our Hawaii Island archaeologist, Marc Smith, accompanied by Ms. Sherry Lee from the DOWALD office. The result of this survey was reported in a memorandum, dated July 24, 1992, from our office to Mr. Manabu Tagomori, Manager, DOWALD. The memorandum also indicated that further subsurface testing was required to help determine the function and age of the one site, site 18405, located during the pedestrian survey. Site 18405 was considered significant for its information content.
Ms. Rae Loui, Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809  

Dear Ms. Loui:

SUBJECT: PUMP INSTALLATION PERMIT APPLICATION  
KEEI WELL 4  
STATE WELL NO. 2753-03  
KEEI, SOUTH KONA, 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, Rules Relating to 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 drinking water wells. The map accompanying the application indicates that the proposed well will be located approximately 4,900 feet upgradient of the Department of Water Supply's Keel Wells (state well nos. 2753-01 and -02).

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

Sincerely,

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

SY:la
MEMORANDUM

TO: Mr. Manabu Tagomori, Manager Chief Engineer
Division of Water and Land Development

FROM: Rae M. Loui

SUBJECT: Pump Installation Permit Application for Keei 4
Well (Well No. 2753-03), Keei, Hawaii

We have received your application for a permit to install a pump in the subject well
and have begun the review process.

Should you have questions, please contact Mr. Ed Sakoda of the Regulation Branch
at extension 70225.

NF:ky
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 Applications  

Transmitted for your review and comment is a copy of the following permit applications:  

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
</tr>
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<td>Hawaii</td>
<td>Keahole-HELCO</td>
<td>4461-02</td>
<td>Well Construction</td>
</tr>
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Please review the applications 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 Commission on Water Resource Management staff at 587-0225.  

Sincerely,  

RAE M. LOUI  
Deputy Director  

NF:ky  
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 Applications

Transmitted for your review and comment is a copy of the following permit applications:

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Should you have any questions, please contact the Commission on Water Resource Management staff at 587-0225.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

NF:ky  
Enc.
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 Applications

Transmitted for your review and comment is a copy of the following permit applications:

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<td>Kekaha-Sunkiss</td>
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Should you have any questions, please contact the Commission on Water Resource Management staff at 587-0225.

Sincerely,

[Signature]

RAE M. LOUI
Deputy Director

NF:ky
Enc.
MEMORANDUM

TO: Don Hibbard, Director
   Historic Preservation Program

FROM: Rae M. Loui, Deputy Director
   Commission on Water Resource Management

SUBJECT: Well Construction and Pump Installation Permit Applications

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Please review the applications 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 Commission on Water Resource Management staff at 587-0225.

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 Applications

Transmitted for your information are copies of recent well permit applications:

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Should you have questions, please contact the Commission on Water Resource Management staff at 587-0225.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

NF:ky  
Enc.
Mr. Clayton H. W. Hee
Chairman & Trustee At Large
Office of Hawaiian Affairs
711 Kapiolani Blvd., Suite 500
Honolulu, Hawaii 96813-5249

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

Dear Mr. Hee:

Well Construction and Pump Installation Permit Applications

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Please review the applications 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 Rae M. Loui, Deputy Director at 587-0214.

Very truly yours,

[Signature]

WILLIAM W. PATY

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

Dear Mrs. Drake:

Well Construction and Pump Installation Permit Applications

Transmitted for your review and comment is a copy of the following permit applications:

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

Very truly yours,

[Signature]

WILLIAM W. PATY

Enc.
CONFIDENTIAL INFORMATION PROTECTED FROM PUBLIC ACCESS

WELL COMPLETION REPORT

INSTRUCTIONS: Please print or type and submit completed reports within 30 days of well completion to the Division of Water & Land Development, P.O. Box 313, Honolulu, HI 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-4543, Hydrology, Geology Section for assistance.

A. STATE WELL No.: 2753-03  
B. LOCATION: Kei, So. Kona  
C. WELL OWNER: State of Hawaii  
D. DRILLING OR PUMP INSTALLATION CONTRACTOR: Water Resources International, Inc.  
E. TYPE OF RIG: Spencer-Harris Rotary Rig  
F. DATE OF WELL COMPLETION: 04/30/92  
G. GROUND ELEVATION (measured): 1347 ft.  
H. TOTAL DEPT.. OF WELL BELOW GROUND: 1343 ft.  
I. HOLE SIZE: 25 inch dia. from 0 ft. to 1343 ft. below ground  
J. CASING INSTALLED:  
   18 in. I.D. x 3/8 in. wall solid to 983 ft. below ground  
   18 in. I.D. x 6/10 in. wall perforated to 1343 ft. below ground  
K. ANNUAL:  
   Grouted from 0 ft. to 726 ft. below ground  
   Gravel packed from 0 ft. to 636 ft. below ground w/16' seal  
L. PERMANENT PUMP INSTALLATION:  
   Pump type, make, serial No.: na  
   Motor type, H.P., voltage, R.P.M.: na  
   Depth of pump intake setting: 1343 ft. below ground which elevation is 1343 ft.  
M. PROPOSED USE:  
N. INITIAL WATER LEVEL: 986.3 ft. below ground.  
O. INITIAL CHLORIDE ppm.:  
P. FUMPING TESTS: Reference point (R.P.) used:  
   Date and time of measurement: 11/20/91  
   Date and time of sampling:  
   Which elevation is ft.  
   Start water level: 986.3 ft. below R.P.  
   End water level: 986.3 ft. below R.P.  
   Depth of well: 1343 ft. below R.P.  
   Elapsed Time (hours) Drawn Rate (gpm) Drawn Depth (ft) Chlor. (ppm) Temp. (°F)  
   0 to 2 1477 3.5 10  
   3 to 72 1807 4.6 10 67.5  
Q. DRILLER'S LOG:  
   Rock Description & Remarks.  
   Water Level ft.  
   Depth, ft.  
   0 to 95  
   95 to 127  
   127 to 300  
   300 to 392  
   392 to 435  
   435 to 448  
   448 to 1343  
   No circulation, no returns.  
   intermittent voids  
   Rock Description & Remarks.  
   Water Level ft.  
   Depth, ft.  
   Latitude 19° 27' 57"  
   Longitude 155° 53' 01"  
   Well No. 2753-03  

Submitted by (print) Kathy Watanabe  
Title Secretary  
Date July 15, 1992
APPLICATION FOR: ☐ Well Construction or ☐ Pump Installation PERMIT

Instructions: Please print or type and send completed application with attachments to the Div. of Water Resource Management, P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Dept. of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7643, Hydrology/Geology Section for assistance.

1. WELL LOCATION/NAME: Keei Well 4 (Well No. 2753-03) Island Hawaii
   Address Keei, South Kona
   Tax Map Key 8-3-11:08
   (Attach a USGS map, scale 1"=2000", and a property tax map showing well location referenced to established property boundaries.)

2. (a) WELL OWNER: State of Hawaii
   Firm Name Div. of Water & Land Development
   Contact Person Manabu Tagomori
   Address 1151 Punchbowl St., Room 227
   Honolulu, HI 96813 Ph. 587-0230

   (b) LANDOWNER:
   Firm Name B.P. Bishop Estate
   Contact Person Edwin T. Ueda, Land Manager
   Address 78-6831 Alii Drive, Suite 232
   Kailua-Kona, HI 96740 Ph. 322-6088

3. PROPOSED CONTRACTOR:
   Name To be determined
   Address _________________
   Contractor’s License No. _______________
   Ph. _______________________

4. PROPOSED WORK: ☐ Drill New Well ☐ Deepen ☐ Redrill
   ☐ Alter ☐ Seal ☐ Abandon
   ☐ Install New Pump ☐ Replace Pump ☐ Modify Pump
   (Briefly describe the proposed work and fill in the diagram on the back of this form.)

5. PROPOSED USE:
   ☐ Municipal (including hotels, stores, etc.) ☐ Military
   ☐ Domestic (individual, noncommercial water sys.) ☐ Industrial
   ☐ Irrigation (specify) ☐ Other (specify) _________________

6. PROPOSED AMOUNT OF WITHDRAWAL: 1 million gallons per day

7. PROPOSED PUMP INFORMATION:
   Pump Type: ☐ Vertical Turbine ☐ Submersible
   ☐ Centrifugal
   Motor: ☐ Diesel ☐ Gas
   ☐ Electric, at a rated horsepower of 350

   Rated Pump Capacity: 1000 Gallons per minute

Well Owner (print) _______________ Landowner (print) _______________
Signature ________________________ Signature ________________
Date ________________ Date ________________

For Official Use Only:
Field Checked By ________________ Latitude ________________
Date ________________ Longitude ________________
Hydrologic Unit ________________ State Well No. 8-2753-03
Aquifer System: Kealakekua
Briefly describe the proposed work:

A submersible deepwell pumping unit with a capacity of 1000 gallons per minute will be installed. The associated electrical and mechanical equipment will be housed in a proposed control building at the well site.

PROPOSED SECTION OF WELL

Elevation at top of casing: 1349 ft., msl.

Cement Grout: 736 ft.

Hole Diameter: 24 in.

Total Depth: 1343 ft.

Rock Packing: 0 ft.

Ground Elevation: 1347 ft., msl

Solid Casing:
- Material: Steel
- Length: 983 ft.
- Diameter: 18 in.
- Wall thickness: 0.375 in.

Casing: □ Perforated □ Screen
- Material: Steel
- Length: 360 ft.
- Diameter: 18 in.
- Wall thickness: 0.375 in.
- Openings: 80 sq. in./L.F.

Open Hole:
- Length: 0 feet
- Diameter: ________ in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
TO: Mrs. Rae M. Lou
Commission on Water Resource Management

FROM: Manabu Tagomo

SUBJECT: Well Permit Application for Job No. 8-HW-D, Ke ei Well 4 Development, (Well No. 2753-03), Ke ei, South Kona, Hawaii

Transmitted for processing is the Pump Installation Permit for the Ke ei Well 4 (Well No. 2753-03).

Also attached are the U.S.G.S. map and property tax map for the well.

Should you have any questions, please have your staff contact Mr. Edward Lau of the Project Development Branch at extension 70227.

AM:lc

Enc.
Sr. William Meyer
District Chief
U.S. Geological Survey
Water Resources Division
677 Ala Moana Blvd., Suite 415
Honolulu, Hawaii 96813

Attention: Mr. Stephen Anthony

Dear Mr. Meyer:

Water Sample, Keei 4 Exploratory Well 2753-03
Kona, Hawaii

Transmitted under separate cover to Mr. Stephen Anthony of your office is a one-gallon water sample taken on April 10, 1992 from the Keei Exploratory Well.

We would appreciate your running the usual chemical analyses and forwarding us a copy of the results as soon as they become available.

Sincerely,

[Signature]

MANABU TAGOMORI
Manager-Chief Engineer

MO:ko
MEMORANDUM FOR THE RECORD

FROM: M. Ohye

SUBJECT: Pumping Test; Keei 4 Exploratory Well No. 2753-03, Hawaii

On April 7, 1992, I travelled to Kona to start the pumping test for the subject well. Morris Ota and I arrived at the site at 9:00 a.m. We started testing at 11:00 a.m. I left instructions for data collection procedures with Morris and the contractor.

Update and Summary:

1) Ground elevation: 1347 ft., msl
2) Total depth: 1343 ft.
3) Water level: 357.7 ft. msl (Airline Method)
4) Testing time & date: 72 hours; April 7-10, 1992
5) Pumping rate: 1800 gallons per minute
6) Drawdown: 4.6 ft.
7) Chlorides: 10 ppm

Pumping test ended at 11:00 a.m. on April 10, 1992. Water level recovered to static 30 minutes after pumping stopped. Morris Ota collected a one-gallon water sample and will ship to Honolulu for analysis.

MO:ko
**PUMPING TEST RECORD**

for Keel 4 Exp L Well 2753-03

(Name) (No.)

**Description of Well**
1. Elevation: ground surface 1347 ft., top of casing ___ ft., rotary table ___ ft., referenced to ______ bechmark.
2. Total depth of well 1742 ft.; or ___ ft. elevation, msl
3. 1/8 in. solid casing to ___ ft. depth, perforated to ___ ft. depth
4. Static water level on April 7, 1992: ___ ft. below ground surface, top of casing; or 357.7 ft. elevation msl measured ______ method

**Description of Pump and Pump Setting**
5. 10' type pump with 1/8 stage bowl assembly
6. Gasoline (diesel), electric, power with ___ horsepower
7. Shaft speed: ____ rpm at ____ gpm flow
8. Depth of pump intake: 1372 ft. below ak.; or ___ ft. elev. msl
9. Depth of airline bottom: 1315 ft. below ak.; or ___ ft. elev. msl
10. Center of gage: ___ ft. elev., msl. Flow measured with ___ gage
11. Test conducted by ___

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline PSI (gage)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mMhos 25°C)</th>
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## PUMPING TEST RECORD

**for**

**KEE 4 EXPL.**

**Well 2753-03**

**Date & Sample No.**

**Pumping rate (gpm)** | **Airline Pressure (PSI)** | **Drawdown (feet)** | **Chlorides (ppm)** | **Temp. (°F)** | **Cond. (mmhos 25°C)**
--- | --- | --- | --- | --- | ---
April 7, 1992
1700 | 1801 | 139.0 | 4.62 | | |
1800 | 1801 | 139.0 | 4.62 | | |
1900 | 1801 | 139.0 | 4.62 | | |
2000 | 1801 | 139.0 | 4.62 | | |
2100 | 1801 | 139.0 | 4.62 | | |
2200 | 1801 | 139.0 | 4.62 | | |
2300 | 1801 | 139.0 | 4.62 | | |
2400 | 1801 | 139.0 | 4.62 | | |
**April 8, 1992**
0100 | 1801 | 139.0 | 4.62 | | |
0200 | 1801 | 139.0 | 4.62 | | |
0300 | 1801 | 139.0 | 4.62 | | |
0400 | 1801 | 139.0 | 4.62 | | |
0500 | 1801 | 139.0 | 4.62 | | |
0600 | 1801 | 139.0 | 4.62 | | |
0700 | 1801 | 139.0 | 4.62 | | |
0800 | 1801 | 139.0 | 4.62 | | |
0900 | 1801 | 139.0 | 4.62 | | |
1000 | 1801 | 139.0 | 4.62 | | |
1100 | 1801 | 139.0 | 4.62 | | |
1200 | 1801 | 139.0 | 4.62 | | |
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1600 | 1801 | 139.0 | 4.62 | | |
1700 | 1801 | 139.0 | 4.62 | | |
1800 | 1801 | 139.0 | 4.62 | | |
1900 | 1801 | 139.0 | 4.62 | | |

**Hawaii Island E-HWP**

**Project or Job No.**

19
## PUMPING TEST RECORD

**for**

**KEE 4 EXP.**  
Well **2153.03**  
(name)  
(NO.)

**HAWAII Island**  
Project or Job No. **19**

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# PUMPING TEST RECORD

**For**

Keei & Enol.  
Well 2753-03  
(name)  
(No.)

**Hawaii**  
Island  
& HW-B  
Project or Job No.  
19

<table>
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<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline psi</th>
<th>Drawdown (feet)</th>
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**ENDED TIME**  
**TIME MINUTES**

- STOP PUMPING - RECOVERY

- METER LEADING 31849800

| 5 | 0 | 140.5 | 1.16 |
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| 15 | 140.2 | 1.85 |
| 20 | 140.8 | 0.46 |
| 30 | 141.0 | 0 |
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| 60 |  |  |  |

Sheet No. 4 of 4 Sheets
### Details of Plumbness and Alignment Test

**Well No:**

**Date:**

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<th>ID</th>
<th>Size of Plummel</th>
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<td></td>
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<tr>
<td>40</td>
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<td></td>
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<tr>
<td>60</td>
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<tr>
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<td>140</td>
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<td>160</td>
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</tbody>
</table>

![Figure C.3 Plumbness and alignment test data sheet.](kee1_4_expl_well_2153-03_kona_sob_no_8-hd-b)
### Details of Plumbness and Alignment Test

<table>
<thead>
<tr>
<th>Depth of Plumbmet Below Top of Well (ft)</th>
<th>Horizontal Deflection of Plumb Line (ft)</th>
<th>Calculated Drift of Well (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>North</td>
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<tr>
<td>400</td>
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**Figure C.3** Plumbness and alignment test data sheet.
Details of Plumbness and Alignment Test

Well No.  Data:
Size of Hole or Casing = ID; Size of Plummet = OD;
Height of Apex Above Top of Well =

<table>
<thead>
<tr>
<th>Depth of Plummet Below Top of Well</th>
<th>Horizontal Deflection of Plumb Line—ft</th>
<th>Calculated Drift of Well—ft</th>
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</thead>
<tbody>
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</tr>
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<td>1180</td>
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<td></td>
</tr>
</tbody>
</table>

Figure C.3 Plumbness and alignment test data sheet.
### Details of Plumbness and Alignment Test

- **Well No.**
- **Date:**

**Sise of Hole or Casing =** ID; **Size of Plummet =** OD; **Height of Apex Above Top of Well =**

<table>
<thead>
<tr>
<th>Depth of Plummet Below Top of Well ft</th>
<th>Horizontal Deflection of Plumb Line—ft</th>
<th>Calculated Drift of Wall—ft</th>
</tr>
</thead>
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<td></td>
</tr>
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</tr>
<tr>
<td>13.37</td>
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<td></td>
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</tbody>
</table>

**Figure C.3** Plumbness and alignment test data sheet.
KEEI EXPL. WELL 4 2753-03
SOUTH KONA, HAWAII, HAWAII
AS BUILT SECTION
Drilled: FEBRUARY 1992
Driller: WATER RESOURCES INTL.

357.7 Ft. Above MSL on 4-7-92
Static Water Level (Airline Meas.)

NOT TO SCALE
December 12, 1991

Water Resources International
P.O. Box 4398
Hilo, Hawaii 96720

Gentlemen:

SUBJECT: Certification of Elevations For Keei Well #4

In response to your request, we submit the following information:

"□" cut in concrete footing at Existing Reservoir
Top of "Kelley Bushing"

<table>
<thead>
<tr>
<th>Elevation</th>
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</thead>
<tbody>
<tr>
<td>1347.05</td>
</tr>
<tr>
<td>1356.33</td>
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</table>

The elevations which were determined for the project site were based on a USC&GS benchmark stamped "1541" with a published elevation of 1540.66 feet (Rev. 9/30/68). The benchmark is a brass disk cemented in a concrete headwall along the North side of Mamalahoa Highway and South of Kealakekua Ranch Center.

Should you have any questions, please contact the undersigned at 329-4494.

Very truly yours,

Russell Figueiroa
Registered Land Surveyor No. 4729

RECEIVED DEC 17 1991
<table>
<thead>
<tr>
<th>CONSIGNEE</th>
<th>DESTINATION</th>
<th>SHIPPER</th>
<th>ORIGIN</th>
<th>AGENT</th>
<th>DATE</th>
<th>TIME</th>
<th>CONJ. AIRBILL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUCKER LEE</td>
<td>Wailea Resources Inc.</td>
<td>173</td>
<td>235935-0</td>
<td>52</td>
<td>2-13-92</td>
<td>11:10</td>
<td></td>
</tr>
<tr>
<td>547-0200</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CARRIER'S LIABILITY IS LIMITED PER ITEM 3 ON REVERSE SIDE. SHIPPER BY INITIAL IN BOX AT LEFT ACCEPTS RELEASED VALUE OR SHIPPER REQUEST DECLARED VALUE SHOWN. (Subject to additional charge.)</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>DECLARED VALUE</th>
<th>PREPAID</th>
<th>COLLECT</th>
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</thead>
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</table>

<table>
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<th>COMM CODE</th>
<th>NO. OF PIECES</th>
<th>VOLUME WEIGHT LBS.</th>
<th>SCALE WEIGHT LBS.</th>
<th>NATURE OF GOODS</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td>IN WATER SAMPLE</td>
</tr>
</tbody>
</table>

| FLAT 161 2 TO 1230 | 1-37 | Subject to Conditions of Contract on the Back of the Airbill |

<table>
<thead>
<tr>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 C</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>235935-0</th>
<th>SHIPPER'S SIGNATURE</th>
<th>HAWAIIAN AIRLINES</th>
</tr>
</thead>
<tbody>
<tr>
<td>173</td>
<td>F. C. Y.</td>
<td>P. O. BOX 30008</td>
</tr>
<tr>
<td></td>
<td></td>
<td>HONOLULU, HAWAII 96820</td>
</tr>
</tbody>
</table>
This is to confirm several matters discussed by our staff on the above wells:

1. The depth of the Kawaihae Well should remain at the reported -30 ft. elevation instead of the -50 ft. elevation in the specifications.

2. The length of perforated casing for the Kawaihae Well should be reduced from 60 ft. to 40 ft.

3. The length of perforated casing for the Kei Well should be increased from 40 ft. to 360 ft.

Call Ed Sakoda at 587-0225 if you have any questions.
<table>
<thead>
<tr>
<th>No. of Pieces</th>
<th>Gross Wt. Lbs.</th>
<th>Dimensional Wt. Lbs.</th>
<th>Commodity Code</th>
<th>Declared Value</th>
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</tbody>
</table>

Carrier's lost/damage liability is limited to cargo's value described in terms 5 & 6 on the reverse side or shipper requests higher valuation and pays additional charges against the value shown here.

I agree to all provisions of this air waybill including the conditions of contract on reverse side.

Shipper's Signature: 

Description of Goods: 

Accepting Agent: 

Date: 11/18/91 

Time: 

Releasing Agent: 

Item(s) accepted at shipper's risk: 

Consignee Pays: 

Prepaid: 

Collect: 

Received in good condition except as noted. 

Signature: 

Print Name: 

Date: 11/18/91 

Time: 

Signature: 

Print Name: 

Date: 11/18/91 

Time: 

Signature: 

Print Name: 

Date: 11/18/91 

Time: 

Signature: 

Print Name: 

Date: 11/18/91 

Time: 

Signature: 

Print Name: 

Date: 11/18/91 

Time:
WELL CONSTRUCTION PERMIT

for

Kei Exploratory Well 4
Well No. 2753-03
Kei, Hawaii

TO: Division of Water Resource Management
1151 Punchbowl Street, Room 227
Honolulu, HI 96813

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 Kei Exploratory Well 4 (Well No. 2753-03) within Tax Map Key: 8-3-11:8, is approved subject to the following conditions:

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

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

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

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

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

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

JUL 16 1990
Date of Issuance

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

Gentlemen:

Division of Water Resource Management
Application for a Well Construction Permit
Keei Exploratory Well 4, Keel, South Kona, Hawaii

Applicant: Division of Water Resource Management
Landowner: Bernice Pauahi Bishop Estate

1151 Punchbowl Street, Room 227
Honolulu, HI 96813
78-6831 Alii Drive, Suite 232
Kailua-Kona, HI 96740

Action Requested: Permission to construct and test an 18-inch diameter, 1390 ft. deep exploratory well (Well No. 2753-03) at Keel.

Well Location: The proposed well site is at Tax Map Key: 8-3-11:8 (see attached map).

Proposed Amount of Use: The well will be drilled and tested to determine the quantity and quality that can be expected from the well.

Well Description:

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground elevation</td>
<td>1320+ ft.</td>
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<tr>
<td>Casing diameter</td>
<td>18-inches</td>
</tr>
<tr>
<td>Solid casing depth</td>
<td>1310 ft.</td>
</tr>
<tr>
<td>Perforated casing depth</td>
<td>1350 ft.</td>
</tr>
<tr>
<td>Open Hole</td>
<td>40 ft.</td>
</tr>
<tr>
<td>Total depth</td>
<td>1390 ft.</td>
</tr>
<tr>
<td>Grouted Annulus</td>
<td>0-1305 ft.</td>
</tr>
</tbody>
</table>

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

Analysis: The well is expected to develop potable water from a fresh basal aquifer. No immediate adverse impacts are expected although there may be long-term effects depending on the amount of use in the area.

Water Availability: The well is located in the SW Mauna Loa Sector, Kealakekua System of Hawaii. Sustainable yield is estimated at 38 mgd.

RECOMMENDATION:

That the Commission approve the issuance of a well construction permit for Keei Exploratory Well 4, subject to the following conditions:
Chairperson and Members
Commission on Water Resource Management

June 27, 1990

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

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

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

(4) The applicant shall comply with all applicable laws, rules, and ordinances.

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

Respectfully submitted,

MANABU TAGOMORI
Deputy Director

Attach.

APPROVAL FOR SUBMITTAL:

WILLIAM W. PATY, Chairperson
Keei Exploratory Well 4
(Well No. 2753-03)

ISLAND OF HAWAII
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
KEEI EXPLORATORY WELL 4
STATE WELL NO. 2753-03
KEEI, HAWAII

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

1. The permit application indicates that the well will be for exploratory purposes. However, if the well should be converted to domestic use and serve a public water system, it will be subject to the Department's Administrative Rules, Title 11, Chapter 20, "Potable Water Systems." Chapter 20 defines a public water system as a system which serves 25 or more individuals at least 60 days per year or has a minimum of 15 service connections.

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 shaft.
If you should have any questions, please contact the Safe Drinking Water Branch at 543-8258.

Very truly yours,

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

cc: Mr. Kazuo G. Akita
Division of Water and Land Development
Department of Land and Natural Resources
1151 Punchbowl Street, Room 227
Honolulu, HI 96813
May 15, 1990

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
KEEI EXPLORATORY WELL 4
STATE WELL NO. 2753-03
KEEI, HAWAII

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

1. The permit application indicates that the well will be for exploratory purposes. However, if the well should be converted to domestic use and serve a public water system, it will be subject to the Department's Administrative Rules, Title 11, Chapter 20, "Potable Water Systems." Chapter 20 defines a public water system as a system which serves 25 or more individuals at least 60 days per year or has a minimum of 15 service connections.

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 shaft.
May 15, 1990

If you should have any questions, please contact the Safe Drinking Water Branch at 543-8258.

Very truly yours,

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

cc: Mr. Kazuo G. Akita
Division of Water and Land Development
Department of Land and Natural Resources
1151 Punchbowl Street, Room 227
Honolulu, HI 96813
William W. Paty, Chairperson  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Paty,

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

Kapoho-Puna Geothermal Venture Well (Well No. 2983-01)  
Keei Exploratory Well 4 (Well No. 2753-03).

These proposed wells do not impact Hawaiian Home Lands.

The copy of the Kapoho Well application has been altered from the original with red ink in three respects: the proposed amount of withdrawal increased 140% from 300,000 to 720,000 gpd, pump horsepower increased 100% from 60 to 120 hp, and pump capacity increased 66% from 300 to 500 gpm.

While this well does not directly affect Hawaiian Home Lands, we feel uncomfortable with a State policy allowing use of valuable potable groundwater for industrial applications. We would encourage consideration of secondary sources (recycling), which would have the added benefit of solving a wastewater problem.

With warmest aloha,

[Signature]

Hoaliku L. Drake, Chairman  
Hawaiian Homes Commission
May 9, 1990

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

WELL CONSTRUCTION PERMIT APPLICATIONS  
KAPOHO-PUNA GEOTHERMAL VENTURE WELL (WELL NO. 2983-01)  
KEEI EXPLORATORY WELL 4 (WELL NO. 2753-03)

We urgently need the development of a fourth production well in South Kona and 
therefore support Well No. 2753-03.

In regard to Well No. 2983-01, the geothermal needs this fresh water well for 
their geothermal drilling purposes. Therefore we have no objections to this 
permit application.

H. William Sewake  
Manager  
GK

...Water brings progress...
May 8, 1990

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
Kapoho-Puna Geothermal Venture Well (Well No. 2983-01)
Kei Exploratory Well 4 (Well No. 2753-03)

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

ROBERT K. YANABU, Division Chief
Engineering Division

STT: so
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 Permit Applications

We are sending you a copy of the following permit applications and ask that your staff review the applications to determine if Hawaiian Home Lands may be affected:

Kapoho-Puna Geothermal Venture Well (Well No. 2983-01)

Keei Exploratory Well 4 (Well No. 2753-03)

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

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

Very truly yours,

WILLIAM W. PATY

Enc.
REF:WL-BM

MAY 4 1990

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

Attn. Mr. Thomas Arizumi, Drinking Water Branch

Dear Dr. Lewin:

Well Construction Permit Applications

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

Kapoho-Puna Geothermal Venture Well (Well No. 2983-01)

Keei Exploratory Well 4 (Well No. 2753-03)

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

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

Very truly yours,

[Signature]

WILLIAM W. PATY

ENC.
April 30, 1990

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

Dear Mr. Ono:

Well Construction Permit Applications

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

Kapoho-Puna Geothermal Venture Well (Well No. 2983-01)  
Keel Exploratory Well 4 (Well No. 2753-03)

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

If you have any questions, please contact Ed Sakoda at 548-7543.

Sincerely,

MANABU TAGOMORI  
Deputy Director

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

Dear Mr. Sewake:  

Well Construction Permit Applications  

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

Kapoho-Puna Geothermal Venture Well (Well No. 2983-01)  
Keei Exploratory Well 4 (Well No. 2753-03)  

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

If you have any questions, please contact Ed Sakoda at 548-7543.  

Sincerely,  

[Signature]  
MANABU TAGOMORI  
Deputy Director  

ES:bm  
Enc.
APPLICATION FOR

WELL CONSTRUCTION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $15.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7542, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key 8-3-11:8
Address

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

2. WELL OWNER

State of Hawaii
Firm Name Div. of Water & Land Dev.
Contact Person Kazuo G. Akita
Address 1151 Punchbowl St., Rm. 227
Honolulu, Hawaii 96813
Phone 548-7496

3. PROPOSED CONTRACTOR FOR:

☐ Well Drilling ☐ Pump Installation

Name To be determined
Address

4. PROPOSED WORK

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

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL ___________ gallons per day

7. PROPOSED PUMP INFORMATION

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

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For Official Use Only:

Well Owner (print) Kazuo G. Akita Landowner (print)
Signature Date APR 25 1990

Field Checked By ___________ Latitude ___________ Hydrologic Unit
Date ___________ Longitude ___________ State Well No. 2753-03
Briefly describe the proposed work:

Explore for a groundwater source by drilling approximately 1390 feet deep.

Geophysical logging will be done. The well will be checked for its chloride content and water level, and pump tested for determination of its safe yield.

PROPOSED SECTION OF WELL

Elevation at top of casing 1322 ft., msl.

Cement
Grout 1305 ft.

Hole Dia. 24 in.

Total Depth 1390 ft.

Rock Packing 0 ft.

Ground Elev. 1320 ft., msl*

Solid Casing:
Material Steel
Length 1310 ft.
Diameter 18 in.
Wall thickness in.

Casing: / /Perforated /X/Screen
Material Steel
Length 40 ft.
Diameter 18 in.
Wall thickness in.
Openings sq. in./L.F.

Open Hole:
Length 40 feet
Diameter 17 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.