**MATERIAL LIST**

<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>8&quot; D.I. PIPE, F.E., 2'-0&quot; LENGTH</td>
</tr>
<tr>
<td>2</td>
<td>1&quot; AIR RELIEF &amp; VACUUM VALVE, APCO MODEL 142MT</td>
</tr>
<tr>
<td>3</td>
<td>6&quot;/8&quot; ECCENTRIC REDUCER, F.E.</td>
</tr>
<tr>
<td>4</td>
<td>8&quot; CENTER-GUIDED CHECK VALVE, F.E.</td>
</tr>
<tr>
<td>5</td>
<td>8&quot; D.I. PIPE, F.E., LENGTH TO SUIT</td>
</tr>
<tr>
<td>6</td>
<td>8&quot; D.I. FLANGE COUPLING ADAPTOR</td>
</tr>
<tr>
<td>7</td>
<td>6&quot; HERSEY TURBINE METER MODEL MHR OR APPROVED EQUAL</td>
</tr>
<tr>
<td>8</td>
<td>6&quot; D.I. PIPE, F.E., 1'-0&quot; LENGTH</td>
</tr>
<tr>
<td>9</td>
<td>6&quot; BUTTERFLY VALVE, F.E.</td>
</tr>
<tr>
<td>10</td>
<td>6&quot; D.I. PIPE, F.E., 1'-5&quot; LENGTH</td>
</tr>
<tr>
<td>11</td>
<td>6&quot; 1/4 D.I. BEND, F.E.</td>
</tr>
<tr>
<td>12</td>
<td>6&quot; D.I. PIPE, F.E. x P.E., LENGTH AS REQUIRED</td>
</tr>
<tr>
<td>13</td>
<td>3/4&quot; AIR RELIEF VALVE, APCO MODEL NO. 50 OPERATING PRESSURE - 6 PSI</td>
</tr>
<tr>
<td>14</td>
<td>PIPE STRAP W/ ANCHOR BOLTS</td>
</tr>
<tr>
<td>15</td>
<td>FLOW SWITCH, FLOWTECT MODEL V-4, 120 VAC</td>
</tr>
</tbody>
</table>

**PUMP COLLAR & PAD PLAN**

- Scale: 3/4" = 1'-0"

- PUMP MOTOR
- DISCHARGE HEAD

**PUMP COLLAR & PAD SECTION**

- Scale: 3/4" = 1'-0"

- PUMP MOTOR
- DISCHARGE HEAD

**Existing 12" I.D., 3/8" WALL WELL CASING**

- CONCRETE BLOCK

- 6" SOLID BODY SEAL W/ RETAINER GROOVE

- 6" PVC PIPE, SCH. 80, IPS SIZE, LENGTH AS REQUIRED

- CONNECT TO EXISTING 12" PVC OUTLET PIPE

- PROVIDE PVC PIPE INCREASES FROM 6" DIA. TO 12" DIA. PIPE

- EXISTING 12" PVC OUTLET PIPE TO LAKE

- CONTRACTOR SHALL VERIFY IN FIELD

**Trim: 22" x 36"**
To: ROY HARDY - CURRA

From: Tom Nance

Subject: SOUTH KOREA WATER WERK GROUP

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

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

680 Ala Moana Boulevard, Suite 406 • Honolulu, Hawaii 96813-5411 • Phone: (808) 537-1141 • Fax: (808) 538-7757

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

Mission Statement

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

Objectives

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

- Reach agreement on a regional plan for the development of sources and distribution systems for potable, non-potable water and effluent reuse;
- Form and establish, as equity participants, a private, regional water company or companies for the development, production, distribution and sale of potable, non-potable and effluent reuse resources serving the parties and others within the region;
- Reach bilateral and multilateral agreements achieving the staged implementation of the regional water plan;
- Publicly support and consider the commitment to the conditional, partial funding of the County of Hawaii Department of Water Supply's (DWS) development of its planned North Kohala Pipeline;
- Develop a Water Commitment Policy, which is incorporated herein by reference, containing guidelines and requirements for each Group Member securing a sufficient supply of water for actual use in accordance with a realistic timetable;
Coordinate the activities of the Water Study Group with all relevant State of Hawaii authorities, including but not limited to its Water Commission, in a manner which promotes and preserves the Group's ability to deal with regional water issues on a collective basis.

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

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

**Governance**

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

The Group Executive Committee shall:

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

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

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

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

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

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

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

Dispute Resolution

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

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

North Kohala Pipeline

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

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

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

This Memorandum of Understanding is entered into this ___ day of ___ , 199_.

MAUNA KEA PROPERTIES, INC.  NANSAY HAWAII, INC.

By Its  By Its  

MAUNA LANI RESORT, INC.  WAIKOLOA LAND COMPANY

By Its  By Its  

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

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

POLICIES

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

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

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

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

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

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

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

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

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

PROCEDURES

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

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

   a. Quantity [and timing] of potable and/or non-potable supply requirements, including the basis for these projections (unit counts, acreage, etc.).
b. Measures taken to avoid excessive potable and/or non-potable water use.
c. Exact location of the water uses, including land use plans, TMKs, etc.
d. Approved State land use designation; County General Plan designation; County zoning; use permit for district use; and the prospective land use approvals, including subdivision, needed to achieve the desired land use.
e. The project's site specific water master plan for potable and not potable water shall be submitted.
f. Exact location, dimensions, and pump capacity of the well (or wells) to be developed to meet these supply requirements.

[g. A development schedule indicating the date of actual water use.] 8.

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

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

a. If conformance with these policies and procedures is demonstrated [and the timing of the application is appropriate,] the Group's approval shall not be unreasonably withheld.
b. If the application fails to meet the standards for acceptability set out herein, no submittal of the application to the Commission shall be made until revisions satisfactory to the Group are made.

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

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

<table>
<thead>
<tr>
<th>Company</th>
<th>By:</th>
<th>Its</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mauna Kea Properties, Inc.</td>
<td>__________________________</td>
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<tr>
<td>Nansay Hawaii, Inc.</td>
<td>__________________________</td>
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<tr>
<td>Mauna Lani Resort, Inc.</td>
<td>__________________________</td>
<td></td>
</tr>
<tr>
<td>Waikoloa Land Company</td>
<td>__________________________</td>
<td></td>
</tr>
</tbody>
</table>
Glenn - is there enough in here to do a pump test analysis?

Yes, see results

✓ Glenn suggested that a new pump test be done in accordance of the standards.

Trumble - this is the one we were holding up until 10/15. Hale would like the other applicant - shall we reject application to close?
April 23, 1996
96TN-125 (93-24)

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

Dear Neil:

Well and Pump Completion Reports For Ouli Wells C and D
(State Nos. 6047-01 and -02) at Mauna Kea Properties in South Kohala, Hawaii

Enclosures with this letter respond to your request to Mauna Kea Properties for the Well Completion and Pump Installation reports for Ouli Wells C and D (State Nos. 6047-01 and -02). Well C was drilled by Water Resources International and the pump was installed by Roscoe Moss Company. Their respective reports are enclosed. Well D was constructed by Fred Page Drilling International which is no longer doing business in Hawaii and is unavailable to provide the required report. However, we've included the well's as-built dimensions and its pump test results. The permanent pump for this well was installed by Roscoe Moss Company; its report is enclosed.

If you have any questions or require additional information, please feel free to call me.

Sincerely,

Tom Nance

cc: Bill Mielcke - MKP

Enclosures
WELL COMPLETION REPORT

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 587-6225.

1. STATE WELL NO. 6047-02
   WELL NAME Ouli Well D
   ISLAND Hawaii

2. LOCATION: Address Ouli, South Kohala, Hawaii
   Tax Map Key 6-2-51

3. DRILLING OR PUMP INSTALLATION CONTRACTOR Roscoe Moss Hawaii, Inc.

4. CONTRACTOR'S C-57 LICENSE NUMBER C-16437

5. NAME OF DRILLER WHO PERFORMED WORK

6. TYPE OF RIG/CONSTRUCTION

7. DATE OF WELL DRILLING COMPLETION
   (NOTE: Report must be submitted within 30 days after this date)

8. GROUND ELEVATION (msl) 705.7 ft.
   Top of Drilling Platform (msl) 706.7 ft. (Top of Pump Pad)
   Height of Drilling Platform above Ground surface __ ft.
   Bench Mark and Method Used to Determine Ground Elevation __ ft.

9. DRILLER'S LOG:

<table>
<thead>
<tr>
<th>Depth (ft.)</th>
<th>Rock Description, Remarks, Dates</th>
<th>Water Level (ft.)</th>
<th>Depth (ft.)</th>
<th>Rock Description, Remarks, Dates</th>
</tr>
</thead>
<tbody>
<tr>
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(If more space is needed, continue on back.)

10. TOTAL DEPTH OF WELL BELOW GROUND 758 ft.

11. HOLE SIZE: 17½ inch dia. from 0 ft. to 758 ft. below ground
    inch dia. from ft. to ft. below ground
    inch dia. from ft. to ft. below ground

12. CASING INSTALLED:

   12 in. I.D. x 3/8 in. wall solid section to 703 ft. below ground
   12 in. I.D. x 3/8 in. wall perforated section to 743 ft. below ground

13. ANNULUS:

   Grouted from 0 ft. below ground to 690 ft. below ground
   Gravel packed from ft. below ground to ft. below ground

14. INITIAL WATER LEVEL ______ ft. below ground. Date and time of measurement

15. INITIAL CHLORIDE ______ ppm Date and time of sampling

16. INITIAL TEMPERATURE ______ °F Date and time of sampling

17. DATE OF PUMP INSTALLATION July 1991

18. PUMP INSTALLATION: Line Shaft Vertical Turbine Pump

   Pump Type, Make, Serial No. Layne 10RKH, 17 Stage
   Motor type, H.P., Voltage, rpm Electric Motor, 125 HP, 480 Volts, 1770 RPM
   Depth of Pump Intake Setting 742 ft. below Pump Pad, which elevation is (-) 35.3 ft.
   Depth of bottom of airline 730 ft. below Pump Pad, which elevation is (-) 23.3 ft.
   Pumping Head is 718 ft.

19. PUMPING TESTS:

   Reference Point (R.P.) used: ______, which elevation is ______ ft.

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level ft. below R.P.</th>
<th>End water level ft. below R.P.</th>
<th>Depth of well ft. below R.P.</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

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

Remarks:

Contractor (print) Roscoe Moss Hawaii, Inc.
Title Vice President
Signature William C. Moss
Date 4-22-96

For Driller's Use:
Job Name
Job No.

For Official Use:
Well No. 6047-02
Longitude 155 47 46
Latitude 20 00 25
SECTION 8100
CURVE NO. 18-071

LAYNE & BOWLER, INC.
MEMPHIS, TENN. 38108

10 RKHC.
1760 R.P.M.

SINGLE STAGE LAB PERFORMANCE WITH STANDARD
MATERIALS. EFFICIENCY SHOWN FOR 4 OR MORE
STAGES. HORSE POWER SHOWN FOR ONE STAGE BASED
ON 4 STAGE EFFICIENCY. CORRECTIONS SHOULD BE
MADE FOR STAGES AND MATERIAL.

A = 7.62
B = 7.32
C = 7.00

EYE AREA — SQ. IN. = 11.63
IMPELLER WT. LBS. = 8.8

WR² PER IMPPELLER = 0.432 LB-FT²
ONE STAGE WT. LBS. = 185

MAX. SPHERE SIZE = 29
MAX. NO. STD. STAGES = 29
IMPPELLER NUMBER = 5N1K171

MAX. OPERATING P.S.I. = 700
DISCH. SIZES = 8.8

STD. LATERAL = 0.86 in.
SUCTION SIZES = 6

STD. SHAFT DIA. = 1.500 in.
MAX. LATERAL = — — — — — — in.

MAX. SHAFT DIA. = 1.687 in.
BOWL CONN. THREADS = — — — — — —

MIN. SUBMERSION = 19 in.
ADD 7-7/16 in. PER ADDITIONAL STAGE

DEEP WELL TYPE

SHORT COUPLED TYPE

2-1/8 in. 11-1/4 in.

1-1/16 in. 4-1/8 in.
STUFFING BOX ASSEMBLY
OIL LUBRICATION
STYLE 60

INSTALLATION AND OPERATING INSTRUCTIONS


2. CLEAR THE SURFACE OF THE HEAD THAT RECEIVES THE TENSION BOX AND REMOVE ANY NICKS OR BURRS WITH A CLEAN FLAT FILE.

3. CAREFULLY INSTALL THE TENSION BOX, ALIGN THE MOUNTING HOLES WITH THE TAPS IN THE HEAD AND TIGHTEN THE MOUNTING CAPTIVE SCREWS.

4. CLEAR THE TENSION BEARING THOROUGHLY AND REMOVE ANY NICKS OR BURRS FROM THE SHAFT AND THREAD (RIGHT HAND) INTO THE TUBE. CONTINUE THREADING UNTIL THE LOWER FLANGE FACE CONTACTS THE TENSION BOX FACE.

5. OIL THE THREADS AND THE SHAFT AND CAREFULLY PLACE THE TENSION BEARING OVER THE SHAFT AND THREAD (RIGHT HAND) INTO THE TUBE. CONTINUE THREADING UNTIL THE LOWER FLANGE FACE CONTACTS THE TENSION BOX FACE.

6. FOR THE PROPER AMOUNT OF TENSION TUBE, REFER TO INSTALLATION MANUAL PAGE 18. FOR SETTINGS LESS THAN 100 FEET, TIGHTEN TO THE NEAREST LOCKING POSITION.

<table>
<thead>
<tr>
<th>SIZE TUBING</th>
<th>1 1/4&quot;</th>
<th>1 3/8&quot;</th>
<th>2&quot;</th>
<th>2 3/8&quot;</th>
<th>2 1/2&quot;</th>
<th>2 3/4&quot;</th>
<th>3&quot;</th>
<th>3 1/2&quot;</th>
<th>4&quot; &amp; UP</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO. TURNS/H</td>
<td>10</td>
<td>12</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
</tbody>
</table>
| "A"-AMOUNT OF PULL UP FOR EACH COMPLETE TURN OF THE TENSION BEARING. THE TOTAL NUMBER OF TURNS REQUIRED CAN BE CALCULATED BY DIVIDING THE FIGURE ABOVE INTO THE TENSION FIGURE FROM PAGE 18 OF THE INSTALLATION MANUAL.

<table>
<thead>
<tr>
<th>SHAFT SIZE</th>
<th>7/8&quot; - 1 3/16&quot;</th>
<th>1 1/2&quot; - 1 3/16&quot;</th>
<th>1 1/8&quot; - 2 7/16&quot;</th>
<th>2 1/8&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;A&quot;-LUBRICATOR SETTING IN DROPS PER MIN.</td>
<td>0</td>
<td>7</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>DROPS PER MIN. PER EACH 100 FT. SETTING</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

TOTAL DROPS/MIN. = "A" x ("B"")

EXAMPLE: 500 FEET OF 1 1/8" X 2 1/2"

TOTAL DROPS/MIN. = 7 x (500 x 3)

= 7 + (5 x 7) = 7 + 35 = 42

8. THE LUBRICATOR SHOULD BE CHECKED PERIODICALLY AND RESET IF REQUIRED TO MAINTAIN THE PROPER FLOW.

THE APPROXIMATE NUMBER OF HOURS OF CONTINUOUS OPERATION AT VARIOUS FLOW RATES CAN BE FOUND IN CHART 1. IT IS GENERALLY RECOMMENDED THAT THE LUBRICATOR BE ADJUSTED FOR THE RECOMMENDED NUMBER OF DROPS PER MINUTE AS OUTLINED IN CHART 2 AND ALLOWED TO OPERATE AT THIS RATE PER 20 MINUTES FOR EACH 100 FEET OF SETTING.

For normal operation, the lubricator should be adjusted in accordance with Chart 2.

<table>
<thead>
<tr>
<th>FLOW RATE DROPS/MIN.</th>
<th>1 QUART</th>
<th>2 QUART</th>
<th>4 QUART</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>110</td>
<td>220</td>
<td>440</td>
</tr>
<tr>
<td>10</td>
<td>70</td>
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<tr>
<td>15</td>
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<td>40</td>
<td>14</td>
<td>28</td>
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</tr>
<tr>
<td>50</td>
<td>11</td>
<td>22</td>
<td>46</td>
</tr>
</tbody>
</table>

7 *. 7200 X 3

PAGE 1 OF

SUPERSEDES 6/1/77
DEEP WELL BOWLS
ENCLOSED LINE SHAFT

ITEM PART NAME MATERIAL
NO. STD. OPTIONAL
660 BOWL ASSY.- - - -
31 IMP. SHAFT COUPLING STEEL
32 IMPELLER SHAFT 410 SS
34 BEARING, TOP INT BRONZE
35 BEARING, INT BRONZE
36 INTERMEDIATE C.I. CL30
38 IMPELLER BRONZE
39 COLLET STN. STL.
40 SUCTION CASE C.I. CL30
41 BEARING, SUCTION BRONZE
42 CONE STRAINER STEEL 304 SS
53 TUBE ADAPTOR STEEL
54 DISCHARGE CASE C.I. CL30
55 OIL SEALS (2) RUBBER
57 WEAR RING BRONZE
58 SAND COLLAR BRONZE
59 SUCTION PLUG C.I.
609 MAIN BEARING BRONZE
610 BEARING, TUBE ADPTR. BRONZE
613 MACH. BOLT, COL./BOWL STEEL
619 GASKET, COL./BOWL - - - -
620 O'RING, BOWL RUBBER
632 SUCTION PIPE STEEL
658 SET SCREW, COLLAR STN. STL.

**OPTIONAL—FURNISHED ONLY WHEN SPECIFIED.**

* MAT'L—RUBBER ON ALL 8" BOWLS. NO SET SCREW (ITEM NO. 658) REQUIRED.

⚠️ OPTIONAL—FURNISHED WHEN SPECIFIED OR WHEN REQUIRED DUE TO BOWL PRESSURE LIMITATIONS.

⚠️ OPTIONAL—FURNISHED WHEN SPECIFIED OR WHEN OPERATING PRESSURE IS 150 PSI OR GREATER.

📸 NOT FURNISHED FOR FORCED WATER LUBRICATION.
### Diagram Description

#### Sectional Drawing

**Title:** Sleeve Type Enclosed Line Shaft Column

**Drawing Information:**
- Section 9100
- DRWG. NO.: 8511-C05A
- Date: Nov. 1, 1978
- Supersedes: NO. MATERIAL ITEM PART

#### Table

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#### Notes

- Optional Material: C.I. CL30 for 6, 8 & 10 Pipe sizes.
- No. of Spiders furnished based on the following total column length and spacing. (None furnished with 3" Col.):
  1. 0 to 48' - None furnished except when factory assembled - then one furnished when there is at least two tube sections.
  2. 48' & beyond - one 20' from bowl and:
     a. Lengths evenly divisible by 20 but not by 40 - 40' intermediate spans which places one 20' from head.
     b. Lengths evenly divisible by 10 but not by 20 or 40 - 40' intermediate spans which places one 20' from head.
     c. Lengths evenly divisible by 15 but not by 20 or 40 - 40' intermediate spans which leaves one either 15' or 30' from head.

## WELL COMPLETION REPORT

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 7071, Honolulu, Hawaii 96820. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 808-586-7225.

1. **STATE WELL NO.** 6047-01  
   **WELL NAME** Ouli Well C  
   **ISLAND** Hawaii

2. **LOCATION:** Address: Ouli, South Kohala, Hawaii  
   **Tax Map Key** 6-2-01:51

3. **DRILLING OR PUMP INSTALLATION CONTRACTOR** Roscoe Moss Hawaii, Inc.

4. **CONTRACTOR’S C-57 LICENSE NUMBER** C-10437

5. **NAME OF DRILLER WHO PERFORMED WORK**

6. **TYPE OF RIG/CONSTRUCTION**

7. **DATE OF WELL DRILLING COMPLETION**  
   (NOTE: Report must be submitted within 30 days after this date)

8. **GROUND ELEVATION (msl)** 724.40 ft.  
   **Top of Drilling Platform (msl)** 725.40 ft. (Top of Pump Pad)  
   **Height of Drilling Platform above Ground surface** __ ft.

9. **DRILLER’S LOG:**  
   **Water Level Depth (ft.)**  
   **Rock Description, Remarks, Dates (ft.)**  
   **Depth (ft.)**  
   **Rock Description, Remarks, Dates (ft.)**

10. **TOTAL DEPTH OF WELL BELOW GROUND** 764 ft.

11. **HOLE SIZE:** 17.5 inch dia. from 0 ft. to 764 ft. below ground  
    **Inch dia. from**  
    **ft. to**  
    **ft. below ground**

12. **CASING INSTALLED:**  
    12 in. I.D. x 3/8 in. wall solid section to 719 ft. below ground  
    **Inch dia. from**  
    **ft. to**  
    **ft. below ground**

13. **ANNULUS:**  
    Grouted from 0 ft. below ground to 700 ft. below ground  
    Gravel packed from __ ft. below ground to __ ft. below ground

14. **INITIAL WATER LEVEL** ft. below ground. Date and time of measurement

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

16. **INITIAL TEMPERATURE** °F Date and time of sampling

17. **DATE OF PUMP INSTALLATION** July 1993

18. **PUMP INSTALLATION:** Line Shaft Vertical Turbine Pump  
    **Pump Type, Make, Serial No.** Layne 10 RRKH, 17 Stage  
    **Capacity** 450 gpm  
    **Motor type, H.P., Voltage, rpm** Electric, 125 HP, 480 Volts, 1770 RPM  
    **Depth of Pump Intake Setting** 742 ft. below top pad, which elevation is (-) 16.6 ft.  
    **Depth of bottom of airline** 730 ft. below top pad, which elevation is (-) 4.6 ft.

19. **PUMPING TESTS:** Reference Point (R.P.) used: __________, which elevation is _________ ft.

   | Date | Start water level | Elapsed Time (hours) | Rate Draw- down (ft.)
   |------|------------------|----------------------|----------------------
   |      | ft. below R.P.   | (ppm)                | (ft.)                |
   |      | ft. below R.P.   |                       |                      |
   |      | ft. below R.P.   |                       |                      |
   |      | ft. below R.P.   |                       |                      |

   | Date | End water level | Elapsed Time (hours) | Rate Draw- down (ct. ppm) Temp. °F
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<th></th>
<th></th>
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</thead>
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<tr>
<td></td>
<td>ft. below R.P.</td>
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<tr>
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<td>ft. below R.P.</td>
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</tr>
<tr>
<td></td>
<td>ft. below R.P.</td>
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</tr>
<tr>
<td></td>
<td>ft. below R.P.</td>
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Remarks:

Contractor (print) Roscoe Moss Hawaii, Inc.  
Title Vice President

Signature W. C. Moore  
Date 4-22-96

For Official Use:  
Job Name Roscoe Moss Hawaii, Inc.  
Job No. 6047-01  
Well No. 6047-01  
Longitude 155 47 42  
Latitude 20 00 43
SECTION: 3100
DWG. NO.: 8511-820A
DATE: MAY 1, 1981
SUPERSEDES: SEPT. '80
ALSO SUPERSEDES: PBS-280

8DR, PR, RK, T, UR, 10TK, T, U, & 12T DEEP WELL BOWLS
ENCLOSED LINE SHAFT

FLANGED BOWL TO COLUMN CONDITION

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<tr>
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<td>35</td>
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<td>58</td>
<td>SAND COLLAR</td>
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<tr>
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◆ OPTIONAL—FURNISHED ONLY WHEN SPECIFIED.
* MAT' L—RUBBER ON ALL 8' BOWLS. NO SET SCREW (ITEM NO. 658) REQUIRED.
△ OPTIONAL—FURNISHED WHEN SPECIFIED OR WHEN REQUIRED DUE TO BOWL PRESSURE LIMITATIONS.
☐ OPTIONAL—FURNISHED WHEN SPECIFIED OR WHEN OPERATING PRESSURE IS 150 PSI OR GREATER.
● NOT FURNISHED FOR FORCED WATER LUBRICATION.
SECTIONAL DRAWING
SLEEVE TYPE ENCLOSED LINE SHAFT COLUMN
3x7/8x1-1/4 THRU 12x2-7/16x3-1/2

SECTION 9100
DRAWG. NO. 8511-C05A
DATE Nov. 1, 1978
SUPERSEDES

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<td>1/2x7/8</td>
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<td>#</td>
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<td>1/4x7/8</td>
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<tr>
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<td>SPIDER</td>
<td>RUBBER</td>
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OPTIONAL MATERIAL: C.I. CL30 for 6, 8 & 10 pipe sizes.

NO. OF SPIDERS FURNISHED BASED ON THE FOLLOWING TOTAL COLUMN LENGTH AND SPACING: (NONE FURNISHED WITH 3" COL.)

1. 0 to 40' - NONE FURNISHED EXCEPT WHEN FACTORY ASSEMBLED - THEN ONE FURNISHED WHEN THERE IS AT LEAST TWO TUBE SECTIONS.
2. 40' & BEYOND - ONE 20' FROM BOWL AND:
   a. LENGTHS EVENLY DIVISIBLE BY 20 - 40' INTERMEDIATE SPANS WHICH PLACES ONE 20' FROM HEAD
   b. LENGTHS EVENLY DIVISIBLE BY 20 BUT NOT BY 40 - 40' INT SPANS, ONE 20' INT SPAN WHICH PLACES ONE 20' FROM HEAD
   c. LENGTHS EVENLY DIVISIBLE BY 10 BUT NOT BY 20 OR 40 - 40' INT SPANS WHICH LEAVES ONE EITHER 10' OR 20' FROM HEAD.

LAYNE & BOWLER, INC.
MEMPHIS, TN 38108 USA

23T
22
21
51T
23
23B
51
28
51B
50
24
65
30
STUFFING BOX ASSEMBLY
OIL LUBRICATION
STYLE 60

PART NAME | MATERIAL
----------|---------
LOCK SCREW | STEEL
OIL INLET | SPECIAL
TENSION BEARING | BRONZE
TENSION BOX | CAST IRON
O-RING | BH,
TUBING | CS-SCH. 80 PIPE
LINE SHAFT | C-1045 CAR. STL

IN INSTALLATION AND OPERATING INSTRUCTIONS

2. CLEAN THE SURFACE OF THE HEAD THAT RECEIVES THE TENSION BOX AND REMOVE ANY NICKS OR BURRS FROM A FINISH FILE.
3. CAREFULLY INSTALL THE TENSION BOX. ALIGN THE MOUNTING HOLES WITH THE TAPS IN THE HEAD AND BEAT THE BOX TO THE HEAD INSTALL AND EVENLY TIGHTEN THE MOUNTING CAPSERS.
4. CLEAN THE TENSION BEARING, THOROUGHLY AND REMOVE ANY NICKS OR BURRS FROM THE MOUNTING FACE AND REGISTER WITH A FINISH File. REMOVE ANY NICKS OR BURRS FROM THE THREADS WITH A THREE-CONED FILE.
5. OIL THE THREADS AND THE BORE AND CAREFULLY PLACE THE TENSION BEARING OVER THE SHAFT AND THREAD (RIGHT HAND) INTO THE TUBING. CONTINUE THREADING UNTIL THE FLOVER FLANGE FACE PLANTS THE TENSION BOX FACE.
6. FOR THE PROPER AMOUNT OF TUBE TENSION REFER TO INSTALLATION MANUAL PAGE 18. FOR SETTINGS LESS THAN 100 FEET, TIE TO THE NEAREST LOCKING POSITION.

CHART 1

<table>
<thead>
<tr>
<th>SIZE TUBING</th>
<th>1 1/4&quot;</th>
<th>1 1/2&quot;</th>
<th>2&quot;</th>
<th>2 1/2&quot;</th>
<th>3&quot;</th>
<th>3 1/2&quot;</th>
<th>4&quot; &amp; UP</th>
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<td>12</td>
<td>10</td>
<td>10</td>
<td>8</td>
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<tr>
<td>&quot;A&quot;</td>
<td>.063</td>
<td>.063</td>
<td>.063</td>
<td>.063</td>
<td>.125</td>
<td>.125</td>
<td>.125</td>
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"A" = AMOUNT OF PULL-UP FOR EACH COMPLETE TURN OF THE TENSION BEARING. THE TOTAL NUMBER OF TURNS REQUIRED CAN BE DETERMINED BY DIVIDING THE FIGURE ABOVE INTO THE TENSION FORD FROM PAGE 18 OF THE INSTALLATION MANUAL.

IF AFTER ADJUSTING THE TENSION BEARING THE PROPER NUMBER OF TURNS, NO SLOT ALONG WITH THE LOCK SCREW TAP IN THE BOX, IT IS RECOMMENDED THAT THE BEARING IS BACKED OFF TO THE NEAREST ALIGNMENT POSITION Z2. IT TAKES MORE THAN AN (A) TURN FOR HARD TO ACHIEVE ALIGNMENT.

7. INSTALL AND TIGHTEN THE LOCK SCREW.
8. CONNECT THE LUBRICATOR TO THE OIL CONNECTION IN THE TENSION BEARING.
9. FIT THE LUBRICATOR WITH A GOOD GRADE MINERAL OIL HAVING A VISCOSITY RATING OF APPROXIMATELY S.A.E. 10 AND HAVING A RELATIVELY LOW COLD POINT.

IMPORTANT:

10. PRIOR TO INITIAL START-UP AND AFTER A SHUT DOWN OF 100 HOURS OR LONGER, THE LUBRICATOR SHOULD BE ADJUSTED FOR THE RECOMMENDED NUMBER OF DROPS PER MINUTE AS OUT-LINED IN CHART 2 AND ALLOWED TO OPERATE AT THIS RATE PER 20 MINUTES FOR EACH 100 FEET OF SETTING.
11. FOR NORMAL OPERATION, THE LUBRICATOR SHOULD BE ADJUSTED IN ACCORDANCE WITH CHART 2.

CHART 2

<table>
<thead>
<tr>
<th>SHAFT SIZE</th>
<th>&quot;A&quot;</th>
<th>DROPS PER MIN.</th>
<th>DROPS PER MIN. PER 100 FT. SETTING</th>
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<tr>
<td>1 1/4/2&quot;</td>
<td>7</td>
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</tr>
<tr>
<td>2 1/2/2&quot;</td>
<td>10</td>
<td>4</td>
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</tr>
<tr>
<td>2 1/2/3&quot;</td>
<td>12</td>
<td>6</td>
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TOTAL DROPS/"A" = (SETTING X "B")

Example: 500 FEET OF 1 1/2" X 2 1/2"

TOTAL DROPS/"A" = 7 X 15 X 2X 7 + 15 X 3X 2X 7 = 6900

CHART 3

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<thead>
<tr>
<th>FLOW RATE</th>
<th>1 QUART</th>
<th>2 QUART</th>
<th>3 QUART</th>
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<tr>
<td>50</td>
<td>11</td>
<td>22</td>
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7 * 120 X 3
1/0
SINGLE STAGE LAB PERFORMANCE WITH STANDARD MATERIALS. EFFICIENCY SHOWN FOR 4 OR MORE STAGES. HORSE POWER SHOWN FOR ONE STAGE BASED ON 4 STAGE EFFICIENCY. CORRECTIONS SHOULD BE MADE FOR STAGES AND MATERIAL.

A = 7.62
B = 7.32
C = 7.00

EYE AREA — SQ. IN. = 11.63
WR² PER IMPELLER = 0.432 LB·FT²
MAX. SPHERE SIZE = 0.525 in.
MAX. NO. STD. STAGES = 70
MAX. OPERATING P.S.I. = 700
MAX. SHAFT DIA. = 1.500 in.
MIN. SUBMERGENCE = 19 in.

DEEP WELL TYPE

SHORT COUPLING TYPE

STANDARD SIZE

FOR ADDITIONAL STAGE
MELISA KEA PROPERTIES
WELLS GOA7-01 & GOA7-02
STEP-DRAWDOWN TEST RESULTS

DRAWDOWN (FEET)

FLOW RATE (GPM)

WELL GOA7-02
(JULY 5, 1991)

WELL GOA7-01
(DEC. 13, 1990)
CHLORINE TESTING
DURING 24-HR
PUMP TESTS:

**WELL 0047-01 (Nov. 1990)**

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<td>5x50</td>
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</tr>
<tr>
<td>2</td>
<td>11/13</td>
<td>3:30PM</td>
<td>5x49</td>
<td>245</td>
</tr>
<tr>
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<td>9:30PM</td>
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<td>4</td>
<td>11/14</td>
<td>3:30AM</td>
<td>5x52</td>
<td>260</td>
</tr>
<tr>
<td>5</td>
<td>11/14</td>
<td>9:30AM</td>
<td></td>
<td>2x132</td>
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**WELL 0047-02 (July 1991)**

<table>
<thead>
<tr>
<th>DAY</th>
<th>TIME</th>
<th>SALT (%)</th>
<th>CONC (ppm)</th>
<th>CHLORINES (mg/L)</th>
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</thead>
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<tr>
<td>7/5</td>
<td>1500</td>
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<td>1245</td>
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<td></td>
<td>1700</td>
<td>0.6</td>
<td>1440</td>
<td></td>
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<tr>
<td>7/6</td>
<td>1000</td>
<td>0.6</td>
<td>1430</td>
<td>364</td>
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<td>0100</td>
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<td>0.6</td>
<td>1440</td>
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<tr>
<td></td>
<td>1000</td>
<td>0.7</td>
<td>1440</td>
<td>357</td>
</tr>
</tbody>
</table>

- SAMPLES GENERALY
  ACCURACY ± 10 MG/L
April 23, 1996
96TN-125 (93-24)

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

Dear Neil:

Well and Pump Completion Reports For Ouli Wells C and D
(State Nos. 6047-01 and -02) at Mauna Kea Properties in South Kohala, Hawaii

Enclosures with this letter respond to your request to Mauna Kea Properties for the Well Completion and Pump Installation reports for Ouli Wells C and D (State Nos. 6047-01 and -02). Well C was drilled by Water Resources International and the pump was installed by Roscoe Moss Company. Their respective reports are enclosed. Well D was constructed by Fred Page Drilling International which is no longer doing business in Hawaii and is unavailable to provide the required report. However, we've included the well's as-built dimensions and its pump test results. The permanent pump for this well was installed by Roscoe Moss Company; its report is enclosed.

If you have any questions or require additional information, please feel free to call me.

Sincerely,

Tom Nance

cc: Bill Mielcke - MKP

Enclosures
TO: State of Hawaii
Commission on Water Resource Management
Department of Land and Natural Resources
1100 ALAKEA STREET, SUITE 2900
HONOLULU, HAWAII 96813

ATTENTION: TOM NANG

WE ARE SENDING YOU the following items:

- [ ] Shop drawings
- [ ] Prints
- [ ] Plans
- [ ] Samples
- [ ] Specifications
- [ ] Copy of letter
- [ ] Change order

**Copies**

<table>
<thead>
<tr>
<th>Date</th>
<th>Description</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>03/30/91</td>
<td>Well Completion Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

THESE ARE TRANSMITTED as checked below:

- [ ] For approval
- [ ] Approved as submitted
- [ ] Resubmit copies for approval
- [ ] For your use
- [ ] Approved as noted
- [ ] Submit copies for distribution
- [ ] As requested
- [ ] Returned for corrections
- [ ] Return corrected prints
- [ ] FOR BIDS DUE

REMARKS: This copy is being sent as requested. Our records reflect that the original copy was transmitted on March 30, 1991.

COPY TO: Blaise Clay - WRI Kamuela Office
Tom Nance - TNWRE, W/enclosure
Mauna Kea Properties, Inc. - W/Enclosure

SIGNED: [Signature]

If enclosures are not as noted, kindly notify...
WELL COMPLETION REPORT

STATE WELL NO. 775-3-08-2
WELL NAME: Irrigation Well #2
ISLAND: Hawaii

LOCATION: South Kohala

WELL OWNER: Mauna Kea Properties

WELL COMPLETION DATE: 02/27/91

GROUND ELEVATION: 732.53 ft.

HOLE SIZE: 12 in. diam. from 0 ft. to 764 ft. below ground

Casing Installed: 12 in. I.D. x 5/16 in. wall solid section to 719 ft. below ground

ANNUAL: Grouted from 0 ft. to 700 ft. below ground

PERMANENT PUMP INSTALLATION: Full-Flo

PROPOSED USE: Irrigation of golf course

INITIAL WATER LEVEL: 719 ft. below ground

INITIAL CHLORIDE: 0 ppm

PUMPING TESTS: Reference point (R.P.) used: 10/02/91

DRAINER'S LOG:

Depth, ft. | Rock Description & Remarks | Water Level, ft. | Depth, ft. | Rock Description & Remarks | Water Level, ft.
---|---|---|---|---|---
0 to 121 | Hard lava rock | to | to | to | to
121 to 129 | Soft (lost circulation) | to | to | to | to
129 to 234 | Med. hard lava rock w/red cinders | to | to | to | to
234 to 242 | Soft (lost circulation) | to | to | to | to
242 to 433 | Med. hard w/broken stringers | to | to | to | to
433 to 666 | Med. hard w/red cinders | to | to | to | to
666 to 736 | Soft, unstable red cinders | to | to | to | to
736 to 770 | Void - loose return (lava tube) | to | to | to | to
770 to 775 | Soft cinder mix | to | to | to | to

REMARKS:

Submitted by (print): Kathy Watanabe

Title: Secretary

Date: March 30, 1991

Signature: ________________________________

Compliance with the Water Resources Commission Act of 1958, Section 15-12, Title 13 Hawaii Revised Statutes.

Waimea Drilling Company

Water Resources International, Inc.
As you may know, monthly ground water use reports are required from well users or operators in the state. I have included a copy of a portion of the Hawaii Administrative Rules regarding water use reporting.

Hapuna Golf Course has reported water use, chlorides and water levels from two wells (Ouli C and Ouli D; well nos. 6047-01,02) in the past. However, the last report we have received is for September 1994. Water use reports are required under condition 4. in your pump installation permit. We have not received a well completion report or an as-built drawing of the pump installation for either well (required under Conditions 5.a. and 5.b.). These may be violations of your pump installation permit.

Mauna Kea Golf Course has reported three months of water use and chloride from four wells in the past. The last report received was for July 1991. These wells were identified by their names and not their state well number making it difficult to know exactly which wells these are. Are there any other wells used on the Mauna Kea Beach Resort grounds?

I am including in this FAX two water use reports forms. One for Hapuna Beach G.C. and one for Mauna Kea Properties. On these forms I have listed all of the wells that are under Mauna Kea Properties ownership.

Please resume your monthly water use reporting. In addition, please send us your past water use, chloride, and water level records since the last report sent for all of these wells. Furthermore, send us the well completion reports and as-built drawings for Ouli C and Ouli D. You may submit future water use reports on a single form if you wish.
To: Mr. William W. Paty  
Chairperson  
COMMISSION ON WATER RESOURCE MANAGEMENT

From: Terry Steckling  
Secretary to William Mielcke  
Date: February 20, 1992

Subject: South Kohala Resort Pump Installation Permits for Ouli "C" and "D"

Per the attached request from Greg Fukumitsu at Tom Nance Water Resources Engineering, enclosed are the executed copies of the Pump Installation Permits for your records. These permits are for wells Ouli "C" (Well No. 2) and Ouli "D" (Well No. 1). We have retained copies for our files.

If you have any questions, please give me a call.

cc: Milton Nakagawa

attach.(3)
TO: MAUNA KEA PROPERTIES
ATTENTION: Bill Mielcke, Milton Nakagawa
FROM: Greg Fukumitsu
DATE: February 12, 1992
SUBJECT: Pump Installation Permits for Ouli "C" and "D"

No. of Pages (including header): 7

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

Attached is a copy of the well installation permits for your two irrigation wells, you should have received your own copies. DWRM has changed the permit letter, see page two. To complete the permit, you now need to sign the bottom of page two and return a copy to DRWM. This will make legal the pump in Well No. 2 (Ouli "C") and you can now proceed with the work for Well No. 1 (Ouli "D").

CC: Milton Nakagawa (1) 882-1174
PUMP INSTALLATION PERMIT

for

Ouli Well C
Well No. 6047-01
Ouli, Hawaii

TO: Mauna Kea Properties, Inc.
P.O. Box 218
Kohala Coast, HI 96743

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a 450 gallons per minute pump in Ouli Well C (Well No. 6047-01), at Tax Map Key: 6-2-01: 51, for golf course irrigation use, is approved subject to the following conditions:

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

2. The pump installation shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

3. The permit shall be for installation of a 450 gpm capacity pump in the well.
PUMP INSTALLATION PERMIT
Well No. 6047-01

4. The applicant shall provide and maintain an approved meter for measuring and reporting total water usage on a monthly basis.

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

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

7. The permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The work proposed in the permit application shall be completed within 24 months from the date of permit issuance.

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

FEB 3 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: 2/5/92

Printed Name: WILLIAM F. MIELUCKE

Firm or Title: PRESIDENT
PUMP INSTALLATION PERMIT
Well No. 6047-01

Please sign and return one copy of this permit to this Department 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
Tom Nance Water Resources Engineering
PUMP INSTALLATION PERMIT

for

Ouli Well D
Well No. 6047-02
Ouli, Hawaii

TO: Mauna Kea Properties, Inc.
P.O. Box 218
Kohala Coast, HI 96743

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a 450 gallons per minute pump in Ouli Well D (Well No. 6047-02), at Tax Map Key: 6-2-01: 51, for golf course irrigation use, is approved subject to the following conditions:

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

2. The pump installation shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

3. The permit shall be for installation of a 450 gpm capacity pump in the well.
PUMP INSTALLATION PERMIT
Well No. 6047-02

4. The applicant shall provide and maintain an approved meter for measuring and reporting total water usage on a monthly basis.

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

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

7. The permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The work proposed in the permit application shall be completed within 24 months from the date of permit issuance.

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

Date of Issuance

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:  

Printed Name:  William F. Mielcke  

Firm or Title:  President
PUMP INSTALLATION PERMIT
Well No. 6047-02

Please sign and return one copy of this permit to this Department 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
  Tom Nance Water Resources Engineering
PUMP INSTALLATION PERMIT

for

Ouli Well C
Well No. 6047-01
Ouli, Hawaii

TO: Mauna Kea Properties, Inc.
P.O. Box 218
Kohala Coast, HI 96743

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a 450 gallons per minute pump in Ouli Well C (Well No. 6047-01), at Tax Map Key: 6-2-01: 51, for golf course irrigation use, is approved subject to the following conditions:

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WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

FEB 3 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: ______________________________________________
PUMP INSTALLATION PERMIT
Well No. 6047-01

Please sign and return one copy of this permit to this Department 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
    Tom Nance Water Resources Engineering
PUMP INSTALLATION PERMIT

for

Ouli Well D
Well No. 6047-02
Ouli, Hawaii

TO: Mauna Kea Properties, Inc.
P.O. Box 218
Kohala Coast, HI 96743

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a 450 gallons per minute pump in Ouli Well D (Well No. 6047-02), at Tax Map Key: 6-2-01: 51, for golf course irrigation use, is approved subject to the following conditions:

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WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

__ FEB 3__ 1997
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: ________________________________

Printed Name: ___________________________________

Firm or Title: ____________________________________
Please sign and return one copy of this permit to this Department 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
     Tom Nance Water Resources Engineering
To: DWRM
Attention: Ed Skolze
From: Tom
Subject: Mauna Kea Properties Well
0047-01 2-02 (Out C&D)

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

Follow up on data on two Mauna Kea Properties existing wells (wells 0047-01 2-02, Ahi C&D, respectively). Both were pumped for 24 hours (or more). Chlorides in 0047-01 were nominally 260 mg/L; in 0047-02, they were higher @ 360 mg/L. More recent samples are consistent with these initial values.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>GO47-01 OML C</th>
<th>GO47-02 OML D</th>
</tr>
</thead>
<tbody>
<tr>
<td>GROUND ELEVATION (ft, m)</td>
<td>784</td>
<td>707</td>
</tr>
<tr>
<td>TOTAL DEPTH (feet)</td>
<td>764</td>
<td>768</td>
</tr>
<tr>
<td>SADD CASING (feet)</td>
<td>710</td>
<td>703</td>
</tr>
<tr>
<td>SCREEN (feet)</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>OPEN HOLE (feet)</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>CEMENTED ANNULUS (feet)</td>
<td>700</td>
<td>690</td>
</tr>
<tr>
<td>WATER LEVEL (ft, m)</td>
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<td>4.3</td>
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</table>

Diagram: 12" ID, 3/8" wall, ground level, total depth, solid casing, screened area, cemented basket, open hole, 17 1/2" bit.
MATERIAL PROPERTIES
WELLS GOAT-01 & GOAT-02
STEP-DRAWDOWN TEST RESULTS

DRAWDOWN (FEET)

WELL GOAT-01 (NOV. 13, 1990)

WELL GOAT-02 (JULY 5, 1991)

FLOW RATE (GPM)
CHLORIDE TESTING
DURING 24-HR
PUMP TESTS:

WELL 0047-01 (Nov. 1990)

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<th>BY</th>
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<td>260</td>
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<td>255</td>
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<td>3x30X76 = 263</td>
<td>LT</td>
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</table>

- SAMPLES GENERALLY 20 ml
- ACCURACY ± 10 MG/L

WELL 0047-02 (July 1991)

<table>
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<tr>
<th>DAY</th>
<th>TIME</th>
<th>CAL (‰)</th>
<th>CONC (mg/l)</th>
<th>CHLORIDES (mg/l)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/5</td>
<td>1500</td>
<td>0.5</td>
<td>1245</td>
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<td>7/6</td>
<td>1000</td>
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<td>1420</td>
<td>364</td>
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<td></td>
</tr>
<tr>
<td>7/7</td>
<td>0100</td>
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<tr>
<td>0400</td>
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<td>0700</td>
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<td>342</td>
</tr>
<tr>
<td>1000</td>
<td>0.7</td>
<td>1440</td>
<td></td>
<td>357 [360±7] (MG/l)</td>
</tr>
</tbody>
</table>

- SAMPLES GENERALLY 20 ml
- ACCURACY ± 10 MG/L
DATE: Dec. 2, 1991

TO COMPANY NAME: Div. of Water Resource

ATTENTION: Glenn Bauer

FAX NO.: 587-0212

FROM: [Signature]

FACSIMILE TRANSMISSION

TOTAL NUMBER OF PAGES INCLUDING COVER PAGE 2

IF NOT RECEIVED INTACT, PLEASE ADVISE AT:

PHONE NO.: (808) 969-1648
FAX NO.: (808) 969-7674

SUBJECT: So. Pacific Pine Golf Course
          Irrigation Well 

EXPLORATION AND DEVELOPMENT SPECIALISTS
Construction Plan
for the
Drilling, Development and Pump Testing
of the
South Kohala Resort Golf Course Irrigation We
To: Water Resource Management Division  
Dept. of Land & Natural Resources  
State of Hawaii  
1151 Punchbowl Street, Room 227  
Honolulu, Hawaii  
Attention: Mr. Glenn Bauer

Gentlemen: We are sending you:

☐ Attached
☐ Under separate cover via __________ the following items:
  ☐ Shop drawings  ☐ Plans  ☐ Change order
  ☐ Prints  ☐ Samples  ☐ Tracings
  ☐ Specifications  ☐ Copy of letter

Copies Date Description
1 __________ Ouli "C" [#6047-01]

These are transmitted as checked below:

☐ For approval  ☐ Resubmit __________ copies for approval
☐ No exceptions taken  ☐ Submit __________ copies for distribution
☐ Make corrections noted  ☐ Revise and resubmit
☐ For your use  ☐ Return __________ corrected prints
☐ As requested  ☐ Rejected  
☐ For review and comment

Remarks:

________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________

Copy to:

Signed: ____________________________

If enclosures are not as noted, kindly notify us at once.
July 19, 1991
91TN-074 (859-07)

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

Dear Manabu:

Pump Installation Permit Applications
for Mauna Kea Properties
South Kohala, Hawaii

The enclosed permit applications and filing fee are submitted on behalf of Mauna Kea Properties. Pumps would be installed in two recently completed wells to irrigate South Kohala Resort golf course. The course is presently under construction.

If any questions arise during your review of this application, please call Bill Mielcke at Mauna Kea Properties (882-7281) or me. Thank you for your attention to this matter.

Sincerely,

Tom Nance

TN:It

cc: Bill Mielcke

Enclosures
Belts, Collins, and Associates (Nance) Ltd.

680 Ala Moana Blvd., Ste. 200
Honolulu, HI 96813

To the order of Department of Land and Natural Resources

Pay exactly $50 and 00/100 DOLLARS

Date: July 19, 1991

DETACH AND RETAIN THIS STATEMENT
THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW.
IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DELUXE FORM WVC-3 V-2

<table>
<thead>
<tr>
<th>DATE</th>
<th>DESCRIPTION</th>
<th>AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-19-91</td>
<td>Filing Fee: Pump Installation Permit Applications for Mauna Kea Properties (Job No. 859-07)</td>
<td>$50.00</td>
</tr>
</tbody>
</table>

Ouali C (6047-01)
Ouali D (6047-02)
### WELL COMPLETION REPORT

**INSTRUCTIONS:** Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-8043, Hydrology, Geology Section for assistance.

**A. STATE WELL NO.** 6041-01  
**WELL NAME** Irrigation Well #2  
**ISLAND** Hawaii  
**STATE WELL NAME** So. Kohala Resort OLI C

**B. LOCATION** South Kohala  
**TAX MAP KEY**

**C. WELL OWNER** Mauna Kea Properties  
**TYPE OF RIG or CONSTRUCTION COMPANY** Water Resources International, Inc.

**D. DRILLING OR PUMP INSTALLATION CONTRACTOR** Spencer Harris Rotary  
**DRILLER** Tom Harmon/Dean Incen

**E. DATE OF WELL COMPLETION** 02/27/91  
**DATE OF PUMP INSTALLATION** na

**F. GROUND ELEVATION (mal)** 732.53 ft.  
**TOP OF DRILLING PLATFORM (mal)** 740.53 ft.

**HOLE SIZE** 17'  
**INCH DIA. FROM 0 FT. TO 764 FT. BELOW GROUND**  
**INCH DIA. FROM 764 FT. BELOW GROUND TO 11 FT. BELOW GROUND**

**CASING INSTALLED**  
**IN. I.D. X IN. WELL SOLID SECTION TO 719 FT. BELOW GROUND**  
**IN. I.D. X IN. WALL PERFORATED SECTION TO 749 FT. BELOW GROUND**

**TYPE OF PUMP** Ful-Flo  
**CAPACITY**

**TAX MAP KEY**  
**WELL NAME** Irrigation Well #2  
**ISLAND** Hawaii  
**STATE WELL NAME** So. Kohala Resort OLI C

**G. FUTURE USE** Irrigation of golf course  
**INITIAL WATER LEVEL** 719 ft. below ground  
**DATE AND TIME OF MEASUREMENT** 10/02/91

**INITIAL CHLORIDE** ppm  
**DATE AND TIME OF SAMPLING**

**P. PUMPING TESTS**  
**REFERENCE POINT (R.P.) USED**

**INITIAL WATER LEVEL** 719 ft. below ground  
**DATE AND TIME OF MEASUREMENT** 10/02/91

**INITIAL CHLORIDE** ppm  
**DATE AND TIME OF SAMPLING**

**Q. DRILLER'S LOG**

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 121</td>
<td>Hard lava rock</td>
<td></td>
<td>121 to 127</td>
<td>Soft (lost circulation)</td>
<td></td>
</tr>
<tr>
<td>127 to 234</td>
<td>Med. hard lava rock &amp; red cinders</td>
<td></td>
<td>234 to 249</td>
<td>Soft (lost circulation)</td>
<td></td>
</tr>
<tr>
<td>249 to 263</td>
<td>Med. hard w/broken strikers</td>
<td></td>
<td>263 to 266</td>
<td>Med. hard red cinders</td>
<td></td>
</tr>
<tr>
<td>266 to 270</td>
<td>Soft, unstable red cinders</td>
<td></td>
<td>270 to 275</td>
<td>Soft cinder mix</td>
<td></td>
</tr>
<tr>
<td>275 to 376</td>
<td>Void - lost returns (lava tube)</td>
<td></td>
<td>376 to 380</td>
<td>(lava tube)</td>
<td></td>
</tr>
<tr>
<td>380 to 400</td>
<td>Soft cinder mix</td>
<td></td>
<td>400 to 425</td>
<td>Void - lost returns (lava tube)</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

Submitted by (print) Kathy Watanabe  
Title Secretary  
Date March 30, 1991
**WELL CONSTRUCTION PERMIT**

**X** **PUMP INSTALLATION PERMIT**

**APPLICATION FOR**

**INSTRUCTIONS:** Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 313, Honolulu, Hawaii 96802. Application must be accompanied by a non-refundable filing fee of $11.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 448-1431, Hydrology/Geology Section for assistance.

1. **WELL LOCATION**

<table>
<thead>
<tr>
<th>Island</th>
<th>Tax Map Key</th>
<th>Well No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>6-2-01:51</td>
<td>6047-02</td>
</tr>
</tbody>
</table>

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

2. **WELL OWNER**

   **Firm Name:** Mauna Kea Properties, Inc.
   **Contact Person:** Bill Mielcke
   **Address:** P.O. Box 218
   **Kohala Coast, Hawaii 96743**
   **Phone:** 882-7281

   **LANDOWNER**

   **Firm Name:** Mauna Kea Properties, Inc.
   **Contact Person:** Bill Mielcke
   **Address:** P.O. Box 218
   **Kohala Coast, Hawaii 96743**
   **Phone:** 882-7281

3. **PROPOSED CONTRACTOR FOR:**

   - [ ] Well Drilling
   - [ ] Pump Installation

   **Name:** Roscoe Moss Company
   **Address:** 830 Ahua Street
   **Honolulu, Hawaii 96819**
   **Phone:** 839-6888
   **Contractor's License No.:** C-5101

4. **PROPOSED WORK**

   - [ ] Drill New Well
   - [ ] Deepen
   - [ ] Alter
   - [ ] Seal
   - [ ] Install New Pump
   - [ ] Replace Pump
   - [ ] Redrill
   - [ ] Abandon
   - [ ] Modify Pump
   - [ ] Seal

   (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)
   - [ ] Military
   - [ ] Industrial
   - [ ] Irrigation (specify) Golf Course
   - [ ] Other (specify) __________

6. **PROPOSED AMOUNT OF WITHDRAWAL**

   600,000 gallons per day

7. **PROPOSED PUMP INFORMATION**

   **Pump Type:** [ ] Vertical Turbine
   **Motor:** [ ] Diesel
   **Rated Pump Capacity:** 450 gallons per minute (gpm)
   **Submersible**
   **Gas**
   **Electric:** 125
   **Centrifugal**

   **Well Owner (print):** Mauna Kea Properties
   **Signature:** __________
   **Date:** __________

   **Landowner (print):** Mauna Kea Properties
   **Signature:** __________
   **Date:** __________

---

[Printed text]
**SKR FEDO PACE WELL (ALSO KRAK) **

**JULY 5, 1991**

- Pump at P - REDA Start @ non-return in 16" below

<table>
<thead>
<tr>
<th>TIME</th>
<th>AIRLINE (PSI)</th>
<th>DOWN (Ft./Min)</th>
<th>RPM</th>
<th>Top Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:25</td>
<td>5.40</td>
<td>0.0</td>
<td>Static</td>
<td></td>
</tr>
<tr>
<td>12:32</td>
<td>1.05</td>
<td>10.0</td>
<td>635</td>
<td>0.0</td>
</tr>
<tr>
<td>12:37</td>
<td>0.50</td>
<td>11.3</td>
<td>630  * 0.0179</td>
<td></td>
</tr>
<tr>
<td>12:50</td>
<td>5.40</td>
<td>0.0</td>
<td>Off</td>
<td></td>
</tr>
<tr>
<td>12:52</td>
<td>Restart → Airline drain is slow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12:55</td>
<td>0.45</td>
<td>11.4</td>
<td>645  * 0.0177</td>
<td></td>
</tr>
<tr>
<td>1:05</td>
<td>Sample → 330 NCL CI</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**→ Stop to install flow control valve**

<table>
<thead>
<tr>
<th>TIME</th>
<th>AIRLINE (PSI)</th>
<th>DOWN (Ft./Min)</th>
<th>RPM</th>
<th>Top Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2:30</td>
<td>5.40</td>
<td>0.0</td>
<td>Static</td>
<td>Resistance</td>
</tr>
<tr>
<td>2:32</td>
<td>0.75</td>
<td>10.7</td>
<td>5999  * 0.0179</td>
<td></td>
</tr>
<tr>
<td>2:35</td>
<td>2.20</td>
<td>7.4</td>
<td>487  * 0.0152</td>
<td></td>
</tr>
<tr>
<td>3:00</td>
<td>3.30</td>
<td>4.9</td>
<td>396  * 0.0124</td>
<td></td>
</tr>
<tr>
<td>3:05</td>
<td>4.10</td>
<td>3.0</td>
<td>311  * 0.0055</td>
<td></td>
</tr>
<tr>
<td>3:15</td>
<td>0.55</td>
<td>1.2</td>
<td>630  * 0.0178</td>
<td></td>
</tr>
</tbody>
</table>

**→ Will run the remainder of 24 hours at 630± GPM.**

**→ Samples are to be taken every 3 hours**

**OUTL "P" → 6047-02**

![Graph showing total drawdown and linear component with equations:](chart)

- **Pump broke down at 11:00 AM on July 5**
- **It was restarted at 10:00 AM on July 6 and run for 24 hours.**
SkR -> Field Pace Well
(Water samples from test of July 5-6, 1991)

<table>
<thead>
<tr>
<th>DAY</th>
<th>TIME</th>
<th>SAR (ppm)</th>
<th>COND (mau)</th>
<th>CHLORIDES (mgh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>7/5</td>
<td>1500</td>
<td>0.6</td>
<td>1245</td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>1700</td>
<td>0.6</td>
<td>1430</td>
<td></td>
</tr>
<tr>
<td>7/6</td>
<td>1000</td>
<td>0.6</td>
<td>1420</td>
<td>364 E RESERED</td>
</tr>
<tr>
<td></td>
<td>1300</td>
<td>0.6</td>
<td>1420</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1600</td>
<td>0.65</td>
<td>1420</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2000</td>
<td>0.65</td>
<td>1425</td>
<td></td>
</tr>
<tr>
<td>7/7</td>
<td>0100</td>
<td>0.65</td>
<td>1450</td>
<td>354</td>
</tr>
<tr>
<td></td>
<td>0400</td>
<td>0.6</td>
<td>1440</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0700</td>
<td>0.65</td>
<td>1440</td>
<td>342</td>
</tr>
<tr>
<td></td>
<td>1000</td>
<td>0.7</td>
<td>1440</td>
<td>357 [360wT10dml]</td>
</tr>
</tbody>
</table>

- Samples generally 20+ ml
  - Accuracy ± 10 mg/l
APPLICATION FOR

WELL CONSTRUCTION PERMIT
X PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 313, Honolulu, Hawaii 96804. Application must be accompanied by a non-refundable filing fee of $125.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 941-1541, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key 6-2-01:51 Well No. 6047-01
Address Mauna Kea Properties, South Kohala
(Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

Firm Name Mauna Kea Properties, Inc.
Contact Person Bill Mielcke
Address P.O. Box 218 Kohala Coast, Hawaii 96743
Phone 882-7281

3. PROPOSED CONTRACTOR FOR:

☐ Well Drilling ☑ Pump Installation

Name Roscoe Moss Company
Address 830 Aahu Street Honolulu, Hawaii 96819
Phone 839-6888
Contractor's License No. C-5101

4. PROPOSED WORK

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

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

5. PROPOSED USE

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

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

6. PROPOSED AMOUNT OF WITHDRAWAL 600,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible ☐ Centrifugal
Motor: ☐ Diesel ☐ Gas ☐ Electric: 125 Rated Horsepower
Rated Pump Capacity 450 gallons per minute (gpm)

Well Owner (print) Mauna Kea Properties
Signature Date July 10, 1991

Landowner (print) Mauna Kea Properties
Signature Date July 12, 1991

For Official Use Only:
Latitude Hydrologic Unit
Longitude State Well No. 6047-01

Oulic
### Pump Test

**Product:**

**Make:**

**Model:**

**Serial Number:**

**Station:**

**Date:** 11/13/30

---

### Test Results

<table>
<thead>
<tr>
<th>TIME (HR)</th>
<th>PSI</th>
<th>FT</th>
<th>GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:00</td>
<td>3.20</td>
<td>7.39</td>
<td>STATIC 0</td>
</tr>
<tr>
<td>7:05</td>
<td>3.00</td>
<td>6.93</td>
<td>0.46</td>
</tr>
<tr>
<td>7:10</td>
<td>3.00</td>
<td>6.93</td>
<td>0.46</td>
</tr>
<tr>
<td>7:15</td>
<td>2.74</td>
<td>6.24</td>
<td>1.15</td>
</tr>
<tr>
<td>7:20</td>
<td>2.74</td>
<td>6.24</td>
<td>1.15</td>
</tr>
<tr>
<td>7:30</td>
<td>2.35</td>
<td>5.49</td>
<td>1.96</td>
</tr>
<tr>
<td>7:40</td>
<td>2.35</td>
<td>5.49</td>
<td>1.96</td>
</tr>
<tr>
<td>8:10</td>
<td>1.85</td>
<td>4.27</td>
<td>3.12</td>
</tr>
<tr>
<td>9:20</td>
<td>1.85</td>
<td>4.27</td>
<td>3.12</td>
</tr>
<tr>
<td>10:30</td>
<td>1.20</td>
<td>2.77</td>
<td>4.62</td>
</tr>
<tr>
<td>11:45</td>
<td>1.20</td>
<td>2.77</td>
<td>4.62</td>
</tr>
</tbody>
</table>

---

**Remarks:**

- Confirmed CL = 250 ppm.
- Signed by LT. OF.

---

**Note:**

- Record every time change in air line reading.
- When flow.
- Take sample.

---

**Graph:**

- Top graph shows pressure changes over time.
- Bottom graph shows flow rate changes over time.

---

**Diagram:**

- Diagram illustrates the test setup and connections.

---

**Additional Information:**

- Pump test conducted for maintenance purposes.
- Station specifics and conditions noted.
- Compliance with safety and integrity standards ensured.
<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>DATE</th>
<th>TIME</th>
<th>CL</th>
<th>BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>11/13</td>
<td>9:45 AM</td>
<td>5x50</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>333 x 78 = 260</td>
<td>LT</td>
</tr>
<tr>
<td>2</td>
<td>11/13</td>
<td>3:30 PM</td>
<td>5x49</td>
<td>245</td>
</tr>
<tr>
<td>3</td>
<td>11/13</td>
<td>9:30 PM</td>
<td>5x51</td>
<td>255</td>
</tr>
<tr>
<td>4</td>
<td>11/14</td>
<td>3:30 AM</td>
<td>5x52</td>
<td>260</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5x55 = 275</td>
<td>BY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>233 x 76 = 253</td>
<td>LT 11/14</td>
</tr>
<tr>
<td>5</td>
<td>11/14</td>
<td>9:30 AM</td>
<td>2 x 132</td>
<td>264</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>265</td>
<td>LT 11/14</td>
</tr>
</tbody>
</table>
Mauna Kea Properties, Inc.
P.O. Box 218
Kamuela, Hawaii 96743

Gentlemen:

We acknowledge receipt of your letter concerning the relocation of Ouli Wells C and D, at Ouli, South Kohala, Hawaii.

We understand that relocating the wells changes the well numbers from Well Nos. 6048-04 and 05, to Well Nos. 6047-01 and 02.

By this letter, your requested changes are approved. If you have any questions, please contact Manabu Tagomori, Deputy Director, at 548-7533.

Very truly yours,

WILLIAM W. PATY

cc: Tom Nance
Mr. Manabu Tagomori  
Commission on Water Resource Management  
Department of Land & Natural Resources  
State of Hawaii  
P. O. Box 373  
Honolulu, Hawaii 96809

Dear Manabu:

Relocation of Proposed Golf Course Irrigation Wells Ouiii C and D,  
Well Nos. 6048-01 and -02, South Kohala, Island of Hawaii

On February 14, 1990, the State Water Commission granted drilling permits to Mauna Kea Properties, Inc. for wells 6048-01 and -02 to be drilled in South Kohala on the Island of Hawaii. We have subsequently decided to relocate these well sites further inland, from the 400-foot sites originally chosen to approximately 680 feet. The enclosed sketch depicts the original and revised sites in relation to nearby wells and other landmark features. By this letter, we are asking for your approval of the revised sites.

As a matter of record, we recently discovered that the location of DLNR test well 6048-01, also known as Kawaihae Well No. 2, is not as shown on your maps. The location of record and its actual location are also shown on the enclosed sketch.

If you have questions regarding the revised locations of Ouiii C or D, please do not hesitate to call. We anticipate using Fred Page Drilling International as the contractor and hope to begin work in six to eight weeks. I look forward to hearing from you.

Sincerely,

Tom Nance

TN:It

cc: Bill Mielcke - Mauna Kea Properties

Enclosure
WILLIAM W. PATY
CHAIRPERSON
JOHN C. LEWIN, M.D.
MICHAEL J. CHUN, PH.D.
ROBERT S. NAKATA
RICHARD H. COX, P.E.
GUY K. FUJIMURA
MANABU TAGOMORI, P.E.
DEPUTY

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P. O. BOX 621
HONOLULU, HAWAII 96809

WELL CONSTRUCTION PERMIT

for

Ouli Well C
Well No. 6048-04
Ouli, South Kohala, Hawaii

TO: Mauna Kea Properties, Inc.
P.O. Box 218
Kamuela, Hawaii 96743

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test Well No. 6048-04 within Tax Map Key: 6-2-01:19 for golf course irrigation use is approved subject to the following conditions:

1. The Division of Water and Land Development (DOWALD), Geology-Hydrology Section, shall be notified at 548-7543, before any work covered by this permit commences.

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

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

4. The grouted annular space shall be at least 3 inches all around the casing.

5. The following shall be submitted to DOWALD, P.O. Box 373, Honolulu, Hawaii 96809, within 30 days after completion of the well:
   a. Well Completion Report.
WELL CONSTRUCTION PERMIT
Well No. 6048-04

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.

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 shall be completed within two years of the date of issuance.

FEB 1990
Date of Issuance

William W. Paty, Chairperson
Commission on Water Resource Management

cc: USGS
   Department of Health
      Drinking Water Branch
      Ground Water Protection Program
   Hawaii Department of Water Supply
   Belt Collins and Associates
TO: Mauna Kea Properties, Inc.
P.O. Box 218
Kamuela, Hawaii 96743

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test Well No. 6048-05 within Tax Map Key: 6-2-01:19 for golf course irrigation use is approved subject to the following conditions:

1. The Division of Water and Land Development (DOWALD), Geology-Hydrology Section, shall be notified at 548-7543, before any work covered by this permit commences.

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

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

4. The grouted annular space shall be at least 3 inches all around the casing.

5. The following shall be submitted to DOWALD, P.O. Box 373, Honolulu, Hawaii 96809, within 30 days after completion of the well:
   a. Well Completion Report.
   b. 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.

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 shall be completed within two years of the date of issuance.

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management

FEB 14 1990
Date of Issuance

cc: USGS
Department of Health
    Drinking Water Branch
    Ground Water Protection Program
Hawaii Department of Water Supply
Belt Collins and Associates
January 25, 1990

Mauna Kea Properties, Inc.
P.O. Box 218
Kamuela, Hawaii 96743

Gentlemen:

The Commission on Water Resource Management will be acting on your permit applications for the following wells at its meeting on January 31, 1990, at 2:00 p.m. in the Kahului Library Conference Room, 90 School Street, Kahului, Maui.

Kawaihae Well 2
Ouli Well A
Ouli Wells C & D

Your applications will be included on the agenda as Items 7, 8, and 9 (enclosed).

You or your representative are invited to attend the meeting.

Sincerely,

ES:ko
Encl.

MANABU TAGOMORI
Deputy Director
December 21, 1989

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

Dear Mr. Paty:

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATION  
OLI WELLS C & D  
STATE WELL NOs. 6048-04 and 6048-05  
KAWAIHAE, HAWAII

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

1. If the proposed wells will be supplying potable water to the golf course, the Department's Administrative Rules, Title 11, Chapter 20, "Potable Water Systems", will be applicable. Section 11-20-29 requires that any 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.

2. The proposed wells lie above the UIC line. Land areas above the UIC line are considered to contain underground sources of drinking water. Thus, it is essential that the proposed wells be designed and constructed to prevent the possibility of groundwater contamination. For example, the wells should have concrete well pads and adequate grouting to prevent seepage or floodwaters from migrating down the well shaft.
3. There are many golf course activities which might contribute to groundwater contamination. Among the activities which should not be allowed to contaminate groundwater are the following:
   
a. Application of biocides, and fertilizers
b. Storage of fuel for vehicles (especially underground storage)
c. Maintenance of vehicles and equipment (cleaning, refueling, lubrication, etc.)

If any of these activities is planned, mitigative measures to assure that groundwater contamination will not occur must be included.

4. As a precautionary measure, monitoring wells should be installed throughout the golf course, especially in areas downgradient of effluent irrigation and areas following drainage ways. The design and siting of the monitoring wells should be reviewed by the Department of Health. The monitoring wells should be periodically sampled and tested for compounds associated with effluent irrigation, fertilizers, and biocides. If any detrimental compounds are found, the owners must be made responsible to immediately correct the situation or face the possibility of a shutdown.

5. Wastewater disposal activities must comply with all pertinent rules and regulations in the event that the project does not connect to an existing, approved wastewater treatment works.

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

Very truly yours,

[Signature]

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

cc: William Mielcke
Mauna Kea Properties, Inc.
P.O. Box 218
Kamuela, Hawaii 96743
December 20, 1989

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

KAWAIHAE WELL 2 (WELL NO. 6048-01)
OULI WELLS C & D (WELL NOS. 6048-04, 05)
OOMA-HASEKO WELL (WELL NO. 4258-01)

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

Mr. William Sewake
Manager

GK

...Water brings progress...
December 19, 1989

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

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATION  
Kawaihae Well 2 (Well No. 6048-01)  
☑ Ouli Wells C & D (Well Nos. 6048-04, 05)  
☑ Ooma – Haseko Well (Well No. 4258-01)

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

[Signature]  
ROBERT K. YANABU, Division Chief  
Engineering Division

STT:so
Honorable John C. Lewin, MD
Director of Health
Department of Health
State of Hawaii
1250 Punchbowl Street
Honolulu, Hawaii 96813

Attn: Dr. Thomas Aizumi, Drinking Water Branch

Dear Dr. Lewin:

Well Construction and Pump Installation 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:

Mekaha Well VI (Well No. 5911-04)
Kawaihao Well 2 (Well No. 6048-01)
Oahu-HASEFO Well (Well No. 4258-61)
Kihei-Piliwai Irr. Well (Well No. 4527-05)
Honouliuli WTP Caprock Well (Well No. 1902-03)

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 Kanamu Tagojuri at 548-7533.

Very truly yours,

WILLIAM W. PATY

Enc.
November 28, 1989

Mauna Kea Properties, Inc.
P.O. Box 218
Kamuela, Hawaii 96743

Gentlemen:

We acknowledge receipt of your applications for two well construction permits (Well Nos. 6048-04, 05) and one pump installation permit (Well No. 6048-01) along with three $25.00 filing fees, for three wells at Ouli, South Kohala, Hawaii.

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

Sincerely,

MANABU TAGOMORI
Deputy Director

ES:ko
cc: Paul P. Wallrabenstein, Jr.,
    Belt Collins & Associates
November 27, 1989

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

Dear Mr. Ono:

Well Construction Permit Applications

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

- Kawaihae Well 2 (Well No. 6048-01)
- Ouli Wells C&D (Well Nos. 6048-04,05)
- Ooma-HASEKO Well (Well No. 4258-01)

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

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

Sincerely,

MANABU TAGOMORI
Deputy Director

ES:ko
Enc.
November 27, 1989

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

Dear Mr. Sewake:

Well Construction Permit Applications

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

- Kawaihao Well 2 (Well No. 8648-01)
- Ouli Wells C&D (Well Nos. 6048-04,05)
- Oona-MAEKO Well (Well No. 4258-01)

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

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

Sincerely,

[Signature]

HANABU TAGOMORI
Deputy Director

Enc.
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

APPLICATION FOR

X WELL CONSTRUCTION PERMIT
  _ PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 218, Honolulu, Hawaii 96828. 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 544-7311, Hydrology/Geology Section for assistance.

1. WELL LOCATION

Island Hawaii Tax Map Key G-2-01:19
Address ________________________________

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

2. WELL OWNER

Firm Name Mauna Kea Properties, Inc.
Contact Person William Mielcke
Address P.O. Box 218
Kamuela, Hawaii 96743
Phone 1-800-952-7225

LANDOWNER

Firm Name Mauna Kea Properties, Inc.
Contact Person William Mielcke
Address P.O. Box 218
Kamuela, Hawaii 96743
Phone 1-800-952-7225

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

Name ________________________________ Phone ________________________________
Address ________________________________ Contractor's License No. __________________

4. PROPOSED WORK

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

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL 403,200 gallons per day (280 gpm)

7. PROPOSED PUMP INFORMATION

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

Well Owner (print) Mauna Kea Properties
Signature ________________________________ Date 4/3/89

Landowner (print) Mauna Kea Properties
Signature ________________________________ Date 4/3/89

For official use only:
Field checked by __________________ Date __________________ Latitude __________________
Longitud __________________ State Well No. 6048-04
Hydrologic Unit __________________

PAY

TO

* DEPARTMENT OF LAND AND NATURAL RESOURCES

DATE

AMOUNT

November 7, 1989

$25.00

IMPREST ACCOUNT

DETACH AND RETAIN THIS STATEMENT
THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW. IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DELCXE FORM TWC-3 SPL N-1811

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<td>SKR Others: Govt. Permits &amp; Fees</td>
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N-1811
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 279, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 1-800-952-7235. Hydrology/ Geology Section for assistance.

1. WELL LOCATION

Island Hawaii

Tax Map Key G-2-01:19

Address

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

2. WELL OWNER

Firm Name Mauna Kea Properties, Inc.

Contact Person William Mielcke

Address P.O. Box 218

Kamuela, Hawaii 96743

Phone 1-800-952-7235

3. PROPOSED CONTRACTOR FOR:

☐ Well Drilling ☐ Pump Installation

Name __________________________ Phone _________________

Address __________________________ Contractor's License No. _________________

4. PROPOSED WORK

☐ Drill New Well ☐ Deepen ☐ Redrill

☐ Alter ☐ Seal ☐ Abandon

☐ Install New Pump ☐ Replace Pump ☐ Modify Pump

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

5. PROPOSED USE

☐ Municipal (including hotels, stores, etc.) ☐ Military

☐ Domestic (individual, noncommercial water systems) ☐ Industrial

☐ Irrigation (specify) ☐ Golf Course ☐ Other (specify) ____________

6. PROPOSED AMOUNT OF WITHDRAWAL 403,200 gallons per day (280 gpm)

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible ☐ Centrifugal

Motor: ☐ Diesel ☐ Gas ☐ Electric: ____________________________

Rated Pump Capacity ____________ gallons per minute (gpm)

Well Owner (print) __________________________

Signature ________________ Date 1/3/87

Landowner (print) __________________________

Signature ________________ Date 1/3/87

For official use only:

Field Checked By __________________________ Latitude ________________ Hydrologic Unit __________________________

Date ________________ Longitude ________________ State Well No. 6048-05

Neil D
PAY TO THE ORDER OF

DEPARTMENT OF LAND AND NATURAL RESOURCES

DATE
November 7, 1989

AMOUNT
$25.00

IMPREST ACCOUNT

DETACH AND RETAIN THIS STATEMENT

THE ATTACHED CHECK IS IN PAYMENT OF ITEMS DESCRIBED BELOW. IF NOT CORRECT PLEASE NOTIFY US PROMPTLY. NO RECEIPT DESIRED.

DELUXE FORM TWC-3 SPL N-1811

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<td>SKR Others: Govt. Permits &amp; Fees</td>
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CHECKLIST

✓ WELL CONSTRUCTION PERMIT

WELL NAME or LOCATION: Ohii Well, C&S

WELL NUMBER: 6048-04-05 6047-01-02

OWNER or OPERATOR: Mayna Kea Properties, Inc.

ADDRESS: P.O. Box 218
            Kamuela, Hawaii 96743

TELEPHONE (contact person): (808) 882-7281

Date application received: 11/15/89

Date acknowledged receipt/request more info: 11/28/89

Date application accepted: ________________

Suspense date (90 days): ________________

Date filing fee deposited: ________________

Application sent to following:

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Date agenda due: ________________

Date submittal due: ________________

Date submittal sent to applicant: ________________

Date application __ approved or __ disapproved: ________________

Date applicant notified of decision: ________________

REMARKS: Location change by letter

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