### CHECKLIST

**WELL CONSTRUCTION PERMIT**

**X PUMP INSTALLATION PERMIT**

**WELL NAME or LOCATION:** Kaanapali P1 & P2 **ISLAND:** Maui

**WELL NUMBER:** 5539-01, 02 **Tax Map Key:** 4-4-04-01

**OWNER/OPERATOR:**  
**Firm Name:** Amfac Property Investment Corp.  
**Contact Person:** Don Fujimoto  
**Address:** 2530 Kekaa Drive  
**Phone:** 667-7411

**LANDOWNER:**  
**Firm Name:** Pioneer Mill Company, Ltd.  
**Contact Person:** Dave Morrell  
**Address:** P.O. Box 727  
**Phone:** 661-3129 or 943-8135 (Honolulu)

**Date application received:** September 5, 1991

**Date acknowledged receipt/request more info:**

**Date application accepted:**

**Suspense date (90 days):**

**Date filing fee deposited:** ($50)

**Application sent to following:**

<table>
<thead>
<tr>
<th>Department/Address</th>
<th>Date sent</th>
<th>Comments received</th>
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</thead>
<tbody>
<tr>
<td>Dept. of Hawn Home Lands</td>
<td>9/17/91</td>
<td></td>
</tr>
<tr>
<td>Dept. of Health</td>
<td></td>
<td></td>
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<tr>
<td>Office of Hawn. Affairs</td>
<td></td>
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<tr>
<td>State Hist Pres Div</td>
<td></td>
<td></td>
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<tr>
<td>Dept/Bd of Water Supply</td>
<td></td>
<td></td>
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<tr>
<td>Sierra Club L. D. F.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Keolauloa NB #28 (Oahu)</td>
<td></td>
<td></td>
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<tr>
<td>Dept/Pub. Wrks (Hawaii)</td>
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<tr>
<td>Additional List (Molokai)</td>
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**Date agenda due:**

**Date submittal due:**

**Date submittal sent to applicant:**

**Date application approved or disapproved:**

**Date applicant notified of decision:**

**REMARKS:**

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---
<table>
<thead>
<tr>
<th>Year Completed (WCR date)</th>
<th>Driller</th>
<th>Well Base El</th>
<th>Casing Bore Depth/ Diameter-in</th>
<th>Well Casing Diameter/ thickness</th>
<th>Solid Casing Length/ (Bot EL)</th>
<th>Perf Casing Length/ (Bot EL)</th>
<th>Open Hole T-Density/ Diameter</th>
<th>Open Hole Length (Bot EL)</th>
<th>Initial SWI Depth (El)</th>
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<tbody>
<tr>
<td>1990</td>
<td>Roscoe</td>
<td>924</td>
<td>945</td>
<td>20&quot;</td>
<td>14&quot;</td>
<td>925</td>
<td>20</td>
<td>985</td>
<td>40</td>
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**Drawdown**

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<tr>
<th>Ft@ Flow</th>
<th>Air Line</th>
<th>Sounding Tube</th>
<th>Comments</th>
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<tbody>
<tr>
<td>31</td>
<td>Yes</td>
<td>No</td>
<td>Well reamed from 12&quot; to 14&quot; to El = -52' (1994) Airline not connected.</td>
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</table>

**WELL PUMP DATA**

<table>
<thead>
<tr>
<th>Pump Type</th>
<th>Last Pump Installed</th>
<th>Surface or Sole Plate El</th>
<th>Column Size Diameter</th>
<th>Column Length</th>
<th>Top of Bowls (El)</th>
<th>Total Bowl Length</th>
<th>Pump Intake El</th>
<th>Motor Length (Ft)</th>
<th>Bottom Motor El</th>
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<tbody>
<tr>
<td>Submersible</td>
<td>4/20/07</td>
<td>927</td>
<td>6</td>
<td>941.08</td>
<td>-14.08</td>
<td>17.54</td>
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**Pump Manufacturer**

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<tr>
<th>Pump Model Number</th>
<th>Design Flow Rate</th>
<th>TDH (ft)</th>
<th>No. of Stages</th>
<th>Comments</th>
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<tr>
<td>National Pump M10LC</td>
<td>400</td>
<td>1033</td>
<td>20</td>
<td>Bowl Eff = 78% Actual Flow = 471 gpm Discharge Pressure = 22 psi Pump Intake in Open Hole Section</td>
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**WELL MOTOR DATA**

<table>
<thead>
<tr>
<th>Motor Manufacturer</th>
<th>Motor Model Number</th>
<th>Motor HP</th>
<th>Voltage</th>
<th>Phase</th>
<th>Motor Speed</th>
<th>Service Factor</th>
<th>Full load Amps</th>
<th>Motor Eff (%)</th>
<th>Power Factor</th>
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<tbody>
<tr>
<td>Alstra Submersible</td>
<td>150</td>
<td>480</td>
<td>3</td>
<td>1750</td>
<td>1.1</td>
<td>195</td>
<td>90.7</td>
<td>79.4</td>
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**Power Cable Size**

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<tr>
<th>Motor Out: Diameter</th>
<th>Shroud Installed</th>
<th>Shroud Diameter</th>
<th>Type Motor</th>
<th>Comments</th>
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<tbody>
<tr>
<td>12</td>
<td>No</td>
<td>NA</td>
<td>Oil Filled</td>
<td>New Motor installed with pump: 4-20-07 Motor in Open Hole Section, No Shourd Confirm Cable Type &amp; Age? (1994)</td>
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**WELL MOTOR CONTROL**

<table>
<thead>
<tr>
<th>Est. Year Installed</th>
<th>MCC Brand</th>
<th>Starter Type</th>
<th>Generator</th>
<th>Transfer Switch</th>
<th>Size (KW)</th>
<th>Comments</th>
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<tbody>
<tr>
<td>1994</td>
<td>Siemens</td>
<td>Auto Trans</td>
<td>None</td>
<td>Yes</td>
<td></td>
<td>Motor Saver added to MCC Confirm Age and Condition of MCC?</td>
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<tr>
<td>WELL DATA</td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>---</td>
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<tr>
<td><strong>Year Completed (WCR date)</strong></td>
<td><strong>Driller</strong></td>
<td><strong>Well Base El</strong></td>
<td><strong>Casing Bore Depth/ Diameter-in</strong></td>
<td><strong>Well Casing Diameter/ thickness</strong></td>
<td><strong>Solid Casing Length/ (Bot EL)</strong></td>
<td><strong>Perf Casing Length/ (Bot El)</strong></td>
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<td>Jun-91</td>
<td>Roscoe</td>
<td>927.21</td>
<td>927.21</td>
<td>14”</td>
<td>0.312</td>
<td>927</td>
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<tr>
<td>(Feb 1991)</td>
<td>Moss</td>
<td></td>
<td>18”</td>
<td></td>
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<tr>
<td>Drawdown</td>
<td>Air Line</td>
<td>Sounding Tube (TD,El)</td>
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<td></td>
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<td></td>
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<tr>
<td>17 @ 500 GPM</td>
<td>Yes</td>
<td>Yes?</td>
<td>946.83</td>
<td>946.8</td>
<td>-19.62</td>
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<tr>
<td></td>
<td></td>
<td>Well reamed to 12” to 14” to El = - 46.8 (1994)</td>
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<tr>
<td></td>
<td></td>
<td>Airline not connected.</td>
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<td></td>
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<tr>
<td></td>
<td></td>
<td>Sounding Tube installed with Pump, confirmed by USGS.</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(Confirm Well Measurements)</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

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<thead>
<tr>
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<tr>
<td><strong>Pump Type</strong></td>
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<tr>
<td>Submersible</td>
</tr>
<tr>
<td>Pump Manufacturer</td>
</tr>
<tr>
<td>Byron</td>
</tr>
<tr>
<td>Jackson</td>
</tr>
<tr>
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<tr>
<td>Jackson</td>
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<tr>
<td>Power Cable Size</td>
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<td>500 MCM</td>
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</tbody>
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<table>
<thead>
<tr>
<th>WELL MOTOR CONTROL</th>
</tr>
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<tbody>
<tr>
<td><strong>Est. Year installed</strong></td>
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<tr>
<td>1994</td>
</tr>
<tr>
<td></td>
</tr>
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</table>
FAX: Transmitting 4 pages, including this one; call 587-0251 with any reception problems.

TO: Dwight Ho

FROM: Charlie Tae

Kaanapali P1 & P2 Info

(Attachment follows on page 217)
DESIGN PUMPING RATE = 500 GPM

PUMPING RATE (Gallons Per Minute)

DRAWDOWN (Feet)
July 2, 2003

Mr. Ernest Y.W. Lau  
Deputy Director for Water Resource Management  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809

Dear Mr. Lau:

We would like to inform you and the Commission that on May 1, 2003 Kaanapali Water Corporation was sold to the California Water Service Group, whose headquarters are in San Jose, California. With the sale, the name of our company was changed to Hawaii Water Service Company (HWSC).

HWSC continues to own and operate the following six wells:

<table>
<thead>
<tr>
<th>USGS No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>5539-01</td>
<td>P-1</td>
</tr>
<tr>
<td>5539-02</td>
<td>P-2</td>
</tr>
<tr>
<td>5739-01</td>
<td>P-4</td>
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<td>5738-01</td>
<td>P-5</td>
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<tr>
<td>5739-02</td>
<td>P-6</td>
</tr>
<tr>
<td>5638-03</td>
<td>Honokowai B</td>
</tr>
</tbody>
</table>

We look forward to continuing working with the Commission and its staff.

Sincerely,

Jeffrey K. Eng  
General Manager
July 2, 2003

Mr. Ernest Y.W. Lau
Deputy Director for Water Resource Management
Commission on Water Resource Management
P.O. Box 621
Honolulu, HI 96809

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<tr>
<td>5739-02</td>
<td>P-6</td>
</tr>
<tr>
<td>5638-03</td>
<td>Honokowai B</td>
</tr>
</tbody>
</table>

We look forward to continuing working with the Commission and its staff.

Sincerely,

Jeffrey K. Eng
General Manager
May 20, 2002

Mr. Jeffrey K. Eng  
Kaanapali Water Corporation  
P.O. Box 13220  
Lahaina, HI 96761

Dear Mr. Eng:

Well Completion Report for Well No. 5539-01 & 02

We received your Well Completion Report Part II for the Kaanapali P-1 and P-2 (Well Nos. 5539-01 & 02) on May 9, 2002 and acknowledge that it is complete. This completes the permit requirements for these wells.

If you have any questions, please contact Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400, extension 70251.

Sincerely,

LINNEL T. NISHIOKA  
Deputy Director

C: Roscoe Moss Hawaii, Inc.
MEMO and ROUTE SLIP

05/10/02

WCR 2 Check for Well No. 5539-01&02 (survey to regulation memo)

1. **Pump Tests Check (special condition of PIP? Yes/No)**
   - Glenn Bauer (initial if yes)
   - Yes No
   - If no, describe deficiency

   **Step-Drawdown Test:**
   - followed WCPI Stds
   - analysis attached
   - proposed pump cap o.k.

   **Aquifer Pump Test:**
   - followed WCPI Stds
   - T & S analysis attached

   **Well Interference:**
   - estimated Steady-State
drawdown at 1-mile radius is _______ ft.
   - analysis attached

   **Stream Surface Water Impacted:**
   - Yes No
   - If yes, identify most probable stream

2. **Pump Installation Check**
   - Mitch Ohye (initial)
   - Yes No
   - If no, describe deficiency

   data complete
   followed WCPI Stds
   well database updated

3. Charley/Lenore/Ryan (initial) take action based on above analysis

4. Roy (initial) check

5. Subia (initial) finalize

6. Linnel (initial) signature

7. Charley/Lenore/Ryan File
May 8, 2002

Ms. Linnel T. Nishioka
Deputy Director
State of Hawaii
Department of Land and Natural Resources
Commission on Water Resource Management
P.O. Box 621
Honolulu, HI 96809

Dear Ms. Nishioka:

Subject: Well Completion Reports for Kaanapali Wells P-1 and P-2

In response to your letter of April 17, 2002, please find enclosed the subject well completion reports. Again, we would like to apologize for any inconveniences this might have caused you.

Sincerely,

Jeffrey K. Eng
Manager
Instructions: Please print in ink or type and send completed report (with attachments, if applicable) to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. The Commission may not accept incomplete reports. This form shall be submitted within 60 days of the completion of work. For assistance, please consult the Hawaii Well Construction and Pump Installation Standards or call the Regulation Branch at 587-0225. For updates to this form or additional information, please visit our website at http://www.state.hi.us/dlnr/cwrm/

1. State Well No.: 5539-01  Well Name: KAANAPALI WATER CO. (P1)  Island: MAUI

2. Address: N/A  Tax Map Key: 4-4-02

3. Pump Installation Company: ROSCOE MOSS HAWAII, INC.

4. Date Pump Installed: 1/16/94

5. PERMANENT PUMP INFORMATION (Attach pump specifications and rating curve)
   - Pump Type, Make, Serial No.: SUBMERSIBLE BYRON JACKSON 931-R0027
   - Rated Capacity: 400 gpm at head of: 1033 ft.
   - Motor Type, H.P., Voltage, rpm: BJ - 150 - 460 - 1751
   - Type of flow meter: PROPELLER which measures in CPM

6. Method of flow measurement:
   - ☐ Flowmeter  ☐ Weir  ☐ Open Pipe  ☐ Orifice*  ☐ Other*, explain below
   - ☐ Other*, explain below
   *attach schematic

7. Fill in the as-built section on the other side of this sheet.

8. Attach photograph of well and concrete pad clearly showing benchmark on concrete pad.

9. Other remarks/comments:

   

Pump Installation Contractor (print) ROSCOE MOSS HI INC.  C-57/C-57a/A Lic. No. C-61437

Signature  Date  5-2-02

Permittee (print) Jeffrey K. Eng

Signature  Date  5/8/02
9. AS-BUILT PUMP SECTION  
(Please attach as-built if different from diagram provided below)

Bench mark elevation surveyed to nearest 0.01 ft. = 927 ft. mean sea level

**Elevation of top of chase tube** = 927 ft. mean sea level

**Pump intake depth** = -39 ft. (referenced to bench mark)

**Chase tube depth** = -16 ft. (referenced to bench mark)

If airline installed, bottom of airline elevation = -16 ft. mean sea level
SUBMERSIBLE OUTLINE
STANDARD WELL SEAL—JUNCTION BOX CONSTRUCTION

DATE ____________________________

NAME OF CUSTOMER _______________________

PROPOSITION NO _______________________

ORDER NO. ____________________________

PURCHASE ORDER NO. _______________________

NO. OF UNITS WEL P-1 5539-01

SURFACE PLATE 25” O.D. 1 1/2” TH’K

8—3/4” FOUNDATION HOLES. STR. # ON 83” B.C

6”—8 T.P.I. 3/4” TAPER T&C ST’D. COLUMN

6”—150# F.F. (STEEL) DISCHARGE FLANGE

BOWL ASSEMBLY 1Q.1/2”L / 23 STGS.

150 H.P. 1750 RPM B.J. SUBM. MOTOR TYPE J

12” SIZE 3 PH. 60 CYCLE 480 VOLT

400 GPM 10.33’ TDH

CABLE SIZE 5 CONDUCTORS VOLTAGE 480 LENGTH 960’

REMARKS: GALVANIZED SCHEDULE 40

DISCHARGE COLUMN SS STRAINER.

INCLUDE SHROUD AROUND PUMP AND MOTOR.

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

JOB NO. ____________________ PROP. NO. ____________________

CERTIFIED ____________________ DATE ____________________

WELL I.D. 14”
Pump Size & Type

**10MQ**

<table>
<thead>
<tr>
<th>Pump Size &amp; Type</th>
<th>舞台</th>
<th>RPM</th>
<th>Imp. Number</th>
<th>Vanes</th>
<th>Diameter</th>
<th>Underfile</th>
<th>Stages</th>
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<tbody>
<tr>
<td><strong>10MQ</strong></td>
<td>23 STG.</td>
<td>1751</td>
<td>168876</td>
<td>85728</td>
<td>6.94589</td>
<td>150</td>
<td>23L</td>
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Data By: NHM

Curve By: 5 AUC 93

|-------------|--------------|----------|---------------|------------------|-------------------|------
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<th>Configuration 1</th>
<th>Pump Type 10MQ</th>
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<td>Design: GPM</td>
<td>400.0</td>
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<td>TDH</td>
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<td>TDH TOL.</td>
<td>PLUS 1.05</td>
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<tr>
<td>MINUS</td>
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<td>Design Maximum Diameter</td>
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<td>Minimum Diameter</td>
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<td>Design Values</td>
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<td>TDH</td>
<td>45.3</td>
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<td>EFF</td>
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<td>BHP</td>
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<tr>
<td>TDH Diff.</td>
<td>.000 %</td>
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<tr>
<td>TOTAL</td>
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<tr>
<td>-1033.00 FEET</td>
<td>DESIGN 1033.0</td>
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Impeller Selection:

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<thead>
<tr>
<th>IMP.</th>
<th>STG.</th>
<th>DIA.</th>
<th>TDH</th>
<th>EFF</th>
<th>BHP</th>
<th>S/O TDH</th>
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<tbody>
<tr>
<td>1)</td>
<td>&gt;L</td>
<td>&gt;23</td>
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<td>6.94589</td>
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<td>2)</td>
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To Calculate Press the F1 Key  
To Exit Press the F9 Key

STANDARD PRODUCT TEST DATA

FIELD RPM 1751.  
FIELD SP. GR. 1.0000  
TEST RPM 1751.  
TEST SP. GR. 1.0000

<table>
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<tr>
<th>% EFF</th>
<th>FIELD RPM</th>
<th>FIELD TDH</th>
<th>FIELD GPM</th>
<th>FIELD BHP</th>
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<tr>
<td>0</td>
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</table>
1.4" STEEL CASING

6.5/8" COLUMN

DEEPEN HOLE - 14" DIAB

MINIMUM DEPTH OF 12" OPEN HOLE TO BE ENLARGED TO CLEAR MOTOR

EXIST. 12" OPEN HOLE TO REMAIN AS IS

400 GPM PUMP
LENGTH ASSUMED @ 15"

INLET SCREEN = 59
150 HP MOTOR
(SHRneau O.D. = 12"

4/3

G529-01 P-1

BOT. OF WELLO @ 6'6"

PROJECT: KAANAPALI WELL P-1

SCALE: HOR. 1" = 2'

VERT. 1" = 10'

JOB NO. 89-103

CHKD. DATE

SHT. NO. 1 OF 2
DIVISION 11. EQUIPMENT

SECTION 11200

DEEPWELL PUMPS AND APPURTENANCES

PART 1 - GENERAL

1.1 SCOPE: Install submersible deepwell pumps with appurtenances for Wells P-1 and P-2, in place, complete. Installation of pumps shall be coordinated with work being performed by the general contractor for the balance of the water system.

1.2 RELATED SECTION: The requirements of Section 01010, SUMMARY OF WORK, apply to this section.

1.3 SUBMITTALS: Submit complete dimensioned shop drawings including assembly instructions and wiring diagrams. Submit manufacturer's certified performance curves, plotted from shutoff head to full capacity at specified total dynamic head. Submit operation and maintenance manual.

1.4 MANUFACTURER’S REPRESENTATIVE: A manufacturer's representative shall review the completed pump installation and shall be present during the operating test. He shall submit a written report stating that the pumps are correctly installed and ready for use. He shall provide 8 hours instruction to the Owner’s personnel on the operation and maintenance of the pumps and motors, in addition to the time spent reviewing and testing the installation.

PART 2 - PRODUCTS

2.1 PUMPS: Byron Jackson submersible pumps, consisting of the following.

2.1.1 Byron Jackson, Model 10MQL, submersible bowl assembly with Ni-Al-Brz with SAE 40 bronze impellers mounted on a Nitronic 50 stainless steel impeller shaft with 304 stainless steel tapered collets and stainless steel mesh-type suction screen. Well P-1 pump shall have a rating of 400 gpm at 1,033 feet TDH. Minimum efficiency at this design rating shall be 78%. Well P-2 pump shall have a rating of 500 gpm at 1,045 feet TDH. Minimum efficiency at this design rating shall be 81%.

2.1.2 Byron Jackson, Type M, oil-filled submersible motor, 480 volt, 3 phase, 60 Hertz, 1770 rpm. Motor horsepowers shall be 150 for Well P-1 and 175 for Well P-2.
1. State Well No.: 5539-02  
   Well Name: KAANAPALI WATER CO. (P2)  
   Island: MAUI

2. Address: N/A  
   Tax Map Key: 4-4-04

3. Pump Installation Company: ROSCOE MOSS HAWAII, INC.

4. Date Pump Installed: 1/16/94

5. PERMANENT PUMP INFORMATION (Attach pump specifications and rating curve)
   Pump Type, Make, Serial No.: SUBMERSIBLE BYRON JACKSON 931-R0028
   Rated Capacity: 500 gpm at head of: 1045 ft.
   Motor Type, H.P., Voltage, rpm: BJ - 175 - 460 - 1751
   Type of flow meter: PROPELLER which measures in GPM
   Model Number Serial Number
   Pump type (check one):
   □ Deep Well Turbine  □ Rotary  □ Propeller
   □ Submersible  □ Rotary-Displacement  □ Reciprocating
   □ Centrifugal  □ Rotary-Gear  □ Impulse

6. Method of flow measurement:
   □ Flowmeter Manufacturer SPECIALTIES Make PROPELLER Size 6"  
   □ Weir □ Open Pipe □ Orifice* □ Other*, explain below
   *attach schematic

7. Fill in the as-built section on the other side of this sheet.

8. Attach photograph of well and concrete pad clearly showing benchmark on concrete pad.

9. Other remarks/comments:

   ____________________________________________

   Pump Installation Contractor (print) ROSCOE MOSS HI, INC. C-57/C-57a/A Lic. No. C-61437
   Signature ___________________________ Date 5-2-03
   Permittee (print) Jeffrey K. Eng
   Signature ___________________________ Date 5-8/02
9. AS-BUILT PUMP SECTION  
(Please attach as-built if different from diagram provided below)

Bench mark elevation surveyed to nearest 0.01 ft. = 927 ft. mean sea level

Elevation of top of chase tube = 927 ft. mean sea level

Pump intake depth = -23 ft.  
(referenced to bench mark)

Chase tube depth = -3 ft.  
(referenced to bench mark)

If airline installed, bottom of airline elevation = -3 ft. mean sea level
SUBMERSIBLE OUTLINE
STANDARD WELL SEAL – JUNCTION BOX CONSTRUCTION

DATE

NAME OF CUSTOMER

PROPOSITION NO

ORDER NO

PURCHASE ORDER NO

NO. OF UNITS

SURFACE PLATE 25" O.D. 1/2" THK

8-7/8" FOUNDATION HOLES STR. @ ON 23" B.C.

6" - 8 T.P.I. - 3/4" TAPER T&C ST'D. COLUMN

6" - 150# F.F. (STEEL) DISCHARGE FLANGE

BOWL ASSEMBLY 10 MQL / 36 STGS

175 H.P. 1755 RPM BJ SUBM. MOTOR TYPE 1

12 SIZE 3 PH. 60 CYCLE 480 VOLT

500 GPM 1045' TDH

CABLE SIZE 500 VOLTAGE 480 LENGTH 450'

REMARKS: GALVANIZED SCHEDULE 40 DISCHARGE COLUMN, SS STRAINER, INCLUDE SHROUD AROUND PUMP AND MOTOR

DO NOT USE FOR CONSTRUCTION UNLESS CERTIFIED

JOB NO. PROP. NO. CERTIFIED

CORRECT DATE

P-652 4/69
## Configuration 1

**Pump Type 10MQ**

### Design Specifications
- **GPM**: 500.0
- **TDH**: 1045.0
- **SP. Gr.**: 1.0000
- **RPM**: 1755.0
- **VISCOSITY**: 0
- **TDH TOL.**: PLUS 1.05, MINUS 0.98

### Design Values
- **Maximum Diameter**: 7.0000
- **Minimum Diameter**: 5.5000

### Impeller Selection

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### TDH Difference
- **1.000 % TOTAL**: 1045.0
- **-03 FEET DESIGN**: 1045.0
- **S/O PSI**: 713.8

### Test Data

#### FIELD RPM 1755.
- **FIELD SP. Gr.**: 1.0000

#### TEST RPM 1755.
- **TEST SP. Gr.**: 1.0000

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To Calculate Press the F1 Key
To Exit Press the F9 Key

STANDARD PRODUCT TEST DATA
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- 60 = Motion of Weir
14" STEEL CASING

MINIMUM DEPTH OF 12" Ø OPEN HOLE TO BE ENLARGED TO CLEAR MOTOR.

EXIST 12" Ø OPEN HOLE TO REMAIN AS IS.

DEEPEN HOLE 10" P.I.B = 17'-0" 30'

BOT. OF CASING @ C - 30

BOT. OF WELL @ C - 63

5539-02
PART 1 - GENERAL

1.1 SCOPE: Install submersible deepwell pumps with appurtenances for Wells P-1 and P-2, in place, complete. Installation of pumps shall be coordinated with work being performed by the general contractor for the balance of the water system.

1.2 RELATED SECTION: The requirements of Section 01010, SUMMARY OF WORK, apply to this section.

1.3 SUBMITTALS: Submit complete dimensioned shop drawings including assembly instructions and wiring diagrams. Submit manufacturer's certified performance curves, plotted from shutoff head to full capacity at specified total dynamic head. Submit operation and maintenance manual.

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PART 2 - PRODUCTS

2.1 PUMPS: Byron Jackson submersible pumps, consisting of the following.

2.1.1 Byron Jackson, Model 10MQ, submersible bowl assembly with Ni-Al-Brz impellers mounted on a Nitronic 50 stainless steel impeller shaft with 304 stainless steel tapered collets and stainless steel mesh-type suction screen. Well P-1 pump shall have a rating of 400 gpm at 1,033 feet TDH. Minimum efficiency at this design rating shall be 78%. Well P-2 pump shall have a rating of 500 gpm at 1,045 feet TDH. Minimum efficiency at this design rating shall be 81%.

2.1.2 Byron Jackson, Type M, oil-filled submersible motor, 480 volt, 3 phase, 60 Hertz, 1770 rpm. Motor horsepowers shall be 150 for Well P-1 and 175 for Well P-2.
**COMMISSION ON WATER RESOURCE MANAGEMENT**

(03/02)

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Ms. Linnel T. Nishioka  
Deputy Director  
State of Hawaii  
Department of Land and Natural Resources  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809

Dear Ms. Nishioka:

Subject: Pump Installation Permits for Kaanapali Wells P-1 and P-2

This letter is in response to your letter dated April 17, 2002 to Mr. Don Fujimoto in regard to the subject permits. For your information, Mr. Fujimoto has not been affiliated with Kaanapali Water for several years. However, we have gone through our files and have contacted Mr. Fujimoto, as well as Mr. Ivan Nakatsuka of Austin, Tsutsumi and Associates and Mr. Bill Moore of Roscoe Moss Hawaii. Apparently, it was the responsibility of Roscoe Moss to file the well completion reports, and they failed to do so. We have asked Roscoe Moss to file the reports and they are currently working on them.

We will be following up on the completion and filing of the reports, and we apologize for any conveniences this has caused you.

Sincerely,

Jeffrey K. Eng  
Manager
We found that P-6 also is missing Well Completion Report Part 2 (Pump Installation). Please include it w/ P-1 and P-2. Thanks!
FROM: Charley

DATE: 14 Dec 00

SUSPENSE DATE

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**PLEASE:**

- Review & Comment
- Type Draft
- Type Final

Response to Chapter 11 notice.

It is in bankruptcy I don't know who to contact.
April 17, 2002

Mr. Don Fujimoto  
Director of Development  
Amfac Property Investment Corporation  
P.O. Box 10279  
Lahaina, HI 96761

Dear Mr. Fujimoto:

Pump Installation Permits  
Ka'anapali P-1 and P-2 (Well Nos. 5539-01 & 02)

In reviewing our records, we find that the captioned permits expired in November 1993, without our receiving any report of work done. Work done without a permit (or on an expired permit) and failure to file a well completion report following installation are potential violations of the Water Code.

Please transmit any records you may have of work completed on these pumps within 30 days, with some notification of what actually transpired.

If you have any questions, please contact Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400, extension 70251.

Sincerely,

LINNEL T. NISHIOKA  
Deputy Director

Cl:ss

c: Ivan Nakatsuka, Austin, Tsutsumi, and Associates
| TO: BAUER, G. | INIT: | TO: MATHIAS, T. | INIT: | FOR: Approval | PLEASE: See Me |
| TO: CHING, F. | INIT: | TO: NAKAMA, L. | INIT: | Signature | Review & Comment |
| TO: DANBARA, S. | INIT: | TO: NAKANO, D. | INIT: | Information | Take Action |
| TO: FUJII, N. | INIT: | TO: NISHIOKA, L. | INIT: | Action | Type Draft |
| TO: HARDY, R. | INIT: | TO: OKUDA, E. | INIT: | Type Final | File |
| TO: | | TO: E. K. | INIT: | | Xerox copies |

Ray -

do they owe us money?

No, not unless we give them
for all goods shipped (remember)

outstanding debts

AMFAC
1234567890

$5,000.00

World Wide

2345/5768

Do?
Notice of Chapter 11 Bankruptcy Cases, Meeting of Creditors, & Deadlines

Chapter 11 bankruptcy cases concerning Amfac Hawaii, LLC and nine of its domestic affiliates (collectively, the "Debtors") listed below were filed on 2/27/02.

You may be a creditor of the Debtors. This notice lists important deadlines. You may want to consult an attorney to protect your rights. All documents filed in the cases may be inspected at the bankruptcy clerk's office at the address listed below.

NOTE: The staff of the bankruptcy clerk's office cannot give legal advice.

See Page 3 For Important Explanations.

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<td>02-07637</td>
<td>36-3109397</td>
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| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| Amfac Holdings Corp. | 02-07642 | 99-0352120      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| Amfac Land Company, Limited | 02-07646 | 99-0185633      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| FHT Corporation | 02-07650    | 36-2580238      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| Kaanapali Development Corp. | 02-07654 | 99-0345055      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| Kaanapali Estate Coffee, Inc. | 02-07657 | 99-0176334      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| KDCW, Inc.       | 02-07660    | 99-0352121      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| Pioneer Mill Company, Limited | 02-07662 | 99-0105278      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |
| The Lihue Plantation Company, Limited | 02-07663 | 99-00468535      |
| 900 North Michigan Avenue, Suite 1900
  Chicago, Illinois 60611 |

1 See attached Exhibit 1 for other names used by the Debtors in the past six years.
Waikele Golf Club, Inc.
900 North Michigan Avenue, Suite 1900
Chicago, Illinois 60611

Case Number: 02-07665
Taxpayer ID No.: 99-0304744

900 North Michigan Avenue, Suite 1900
Chicago, Illinois 60611

Attorney for Debtors (name and address):
Ann Marie Bredin
Jones, Day, Reavis & Pogue
77 West Wacker Drive, Suite 3500
Chicago, Illinois 60601-1692

Telephone Number:

Telephone numbers for case inquiries are listed on page 4.

Meeting of Creditors:

Date: April 29, 2002
Time: 1:30 P.M.
Location: Office of the United States Trustee
227 West Monroe Street, Room 3330
Chicago, Illinois 60606

Deadline to File a Proof of Claim:

Proof of Claim must be received by the Debtors' Claims Agent by the following deadline:
Notice of deadline will be sent at a later time.
Any proof of claim filed in these cases should be addressed to Logan & Company, Inc.,
546 Valley Road, Upper Montclair, NJ 07043, Attn: Amfac Claims Processing Department

Creditors May Not Take Certain Actions:

The filing of the bankruptcy case automatically stays certain collection and other actions against the Debtors and the Debtors' property. If you attempt to collect a debt or take other action in violation of the Bankruptcy Code, you may be penalized.

Address of the Bankruptcy Clerk's Office:
219 South Dearborn
Chicago, Illinois 60604

Telephone number: 888-232-6814 (recorded)

Hours Open:
9:00 a.m. to 4:30 p.m.

For the Court:

Clerk of the Bankruptcy Court:
Kenneth Gardner

Date:
March 18, 2002
EXPLANATIONS

| Filing of Chapter 11 Bankruptcy Case | A bankruptcy case under chapter 11 of the Bankruptcy Code (title 11, United States Code) has been filed in this court by or against the Debtors listed on the front side, and an order for relief has been entered. Chapter 11 allows a debtor to reorganize or liquidate pursuant to a plan. A plan is not effective unless confirmed by the court. You may be sent a copy of the plan and a disclosure statement telling you about the plan, and you might have the opportunity to vote on the plan. You will be sent notice of the date of the confirmation hearing, and you may object to confirmation of the plan and attend the confirmation hearing. Unless a trustee is serving, the Debtors will remain in possession of the Debtors' property and may continue to operate any business. |
| Creditors May Not Take Certain Actions | Prohibited collection actions are listed in Bankruptcy Code. § 362. Common examples of prohibited actions include contacting the Debtors by telephone, mail or otherwise to demand repayment; taking actions to collect money or obtain property from the Debtors; repossessing the Debtors' property; starting or continuing lawsuits or foreclosures. |
| Meeting of Creditors | A meeting of creditors is scheduled for the date, time and location listed on page 2. The Debtors' representative must be present at the meeting to be questioned under oath by the trustee and by creditors. Creditors are welcome to attend, but are not required to do so. The meeting may be continued and concluded at a later date without further notice. |
| Claims | A Proof of Claim is a signed statement describing a creditor's claim. If a Proof of Claim form is not included with this notice, you can obtain one at any bankruptcy clerk's office. You may look at the schedules that have been or will be filed at a bankruptcy clerk's office. If your claim is scheduled and is not listed as disputed, contingent, or unliquidated, it will be allowed in the amount scheduled unless you file a Proof of Claim or you are sent further notice about the claim. Whether or not your claim is scheduled, you are permitted to file a Proof of Claim. If your claim is not listed at all or if your claim is listed as disputed, contingent or unliquidated, then you must file a Proof of Claim or you might not be paid any money on your claim against the Debtors in the bankruptcy case. The court has not yet set a deadline to file a Proof of Claim. If a deadline is set, you will be sent another notice. The Claims Agent appointed in these cases is Logan & Company, Inc., 546 Valley Road, Upper Montclair, NJ 07043. |
| Discharge of Debts | Confirmation of a chapter 11 plan may result in a discharge of debts, which may include all or part of your debt. See Bankruptcy Code § 1141(d). A discharge means that you may never try to collect the debt from the Debtors, except as provided in the plan. |
| Bankruptcy Clerk's Office | Any paper that you file in this bankruptcy case should be filed at the bankruptcy clerk's office at the address listed on the front side. You may inspect all papers filed, including the list of the Debtors' property and debts at the bankruptcy clerk's office. |
| Legal Advice | The staff of the bankruptcy clerk's office cannot give legal advice. You may want to consult an attorney to protect your rights. |

— Refer To Other Pages For Important Deadlines and Notices —
The United States Trustee requires all debtors to verify their identity and social security number at the 341 meeting.

These cases are assigned to Judge Bruce W. Black.

Questions regarding certificate of land appreciation notes (COLAs) should be directed to Eamon Fahey, Bank One Trust Company, National Association, as successor trustee at 614-248-5579.

General questions regarding these cases should be directed to 808-543-8552.

Copies of documents can be obtained by contacting a Public Service Clerk at 312-435-5694.

The telephone number for counsel to the Debtors is 312-782-3939.

The United States Trustee has assigned attorney Richard C. Friedman to these cases. His telephone number is 312-886-3320 and his e-mail is Richard.C.Friedman@usdoj.gov.

EXHIBIT 1

OTHER NAMES USED BY THE DEBTORS IN THE PAST SIX (6) YEARS

Amfac
Amfac Agribusiness, Inc.
Amfac Hawaii
Amfac Sugar and Agribusiness, Inc.
Amfac Sugar Kauai
Amfac/JMB Hawaii, Inc.
Amfac/JMB Hawaii, L.L.C.
Amfac/JMB Mergerco., L.L.C.
Kaanapali Estate Coffee
Kaanapali Moka Coffee
Kauai Sugar Storage Company
Maui Moka Coffee
Mau'i's Kaanapali Coffee
Moka Coffee
Mokka Coffee
Pioneer Mill Coffee
Pioneer Mill Moka Coffee
Waihole Irrigation Company, Inc.
Waikele
Waikele Golf Course
Waikele Planned Community
February 24, 1999

Honorable Timothy E. Johns, Chairperson
State of Hawaii
Department of Land & Natural Resources
Commission on Water Resource Management
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Johns:

We request copies of any information/records of water issues with Kaanapali Water System the Commission on Water Resource Management may have.

The Maui Board of Water Supply is looking into the possibility of purchasing the Kaanapali Water System. At its February 16, 1999 regular meeting, the Board requested the BWS Chair, Director, and legal counsel to the Board proceed with due diligence in obtaining the necessary information and report back to the Board at its March 1999 meeting.

Your assistance and timely response is appreciated.

Sincerely,

David Craddick, Director
DC/jaw

"By Water All Things Find Life"
<table>
<thead>
<tr>
<th>TO:</th>
<th>INIT.</th>
<th>TO:</th>
<th>INIT.</th>
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<td>JOHNS, T.</td>
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<td>KUNIMURA, I.</td>
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</tbody>
</table>

Late last week we sent the following materials, responding to Dave's phone call:

- Driller logs from several wells in system (what was available)
- Pumpage reports for system (6 mo.)
- PER for recent wells, giving system overview
February 24, 1999

Honorable Timothy E. Johns, Chairperson
State of Hawaii
Department of Land & Natural Resources
Commission on Water Resource Management
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Johns:

We request copies of any information/records of water issues with Kaanapali Water System the Commission on Water Resource Management may have.

The Maui Board of Water Supply is looking into the possibility of purchasing the Kaanapali Water System. At its February 16, 1999 regular meeting, the Board requested the BWS Chair, Director, and legal counsel to the Board proceed with due diligence in obtaining the necessary information and report back to the Board at its March 1999 meeting.

Your assistance and timely response is appreciated.

Sincerely,

David Craddick, Director
DC/jaw

"By Water All Things Find Life"
September 22, 1993

Mr. Keith Ahue, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

RE: Pump Installation Permits for Kaanapali P-1 Well (State Well No. 5539-01) and Kaanapali P-2 Well (State Well No. 5539-02), Kaanapali, Maui, Hawaii

In accordance with Condition No. 1 of the subject permits, we are hereby submitting written notification that our pump installation contractor, Roscoe Moss Hawaii, Inc., will commence with their work for both wells, on or about October 1, 1993.

Please feel free to contact me if you have any questions concerning this matter.

Sincerely,

Don Fujimoto
Director of Development

DF:tg

xc: Lambert Yamashita
Ivan Nakatsuka - Austin, Tsutsumi & Associates, Inc.
September 22, 1993

Mr. Keith Ahue, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

RE: Pump Installation Permits for Kaanapali P-1 Well (State Well No. 5539-01) and Kaanapali P-2 Well (State Well No. 5539-02), Kaanapali, Maui, Hawaii

In accordance with Condition No. 1 of the subject permits, we are hereby submitting written notification that our pump installation contractor, Roscoe Moss Hawaii, Inc., will commence with their work for both wells, on or about October 1, 1993.

Please feel free to contact me if you have any questions concerning this matter.

Sincerely,

Don Fujimoto
Director of Development

xc: Lambert Yamashita
Ivan Nakatsuka - Austin, Tsutsumi & Associates, Inc.
Mr. Don Fujimoto, Director of Development  
AMFAC/JMB Hawaii, Inc.  
Maui Properties  
2530 Kekaa Drive  
Lahaina, HI 96761

Dear Mr. Fujimoto:

Request for Second Extension of Pump Installation Permits for  
Kaanapali P-1 (Well No. 5539-01) and Kaanapali P-2 (Well No. 5539-02)

We understand that you were unable to start the pump installation work by February 28, 1993, but that you plan to proceed shortly. By this letter, we are extending your start date an additional six months to August 28, 1993. Please note that the work should be completed within two years of the date of issuance, or by November 29, 1993.

Please notify the Commission on Water Resource Management staff in writing before any work covered by the permit begins, or if work cannot begin by August 28, 1993.

Very truly yours,

KEITH W. AHUE
May 24, 1993

Mr. Keith W. Ahue, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

RE: Request for Extension of Pump Installation Permit for Kaanapali P-1 Well (State Well No. 5539-01) and Kaanapali P-2 Well (State Well No. 5539-02) Kaanapali, Maui, Hawaii

This letter is a follow-up to our June 9, 1992 letter, whereby we had requested a nine-month extension to commence installation of the pumps for the subject wells. We regret to inform you that we were not able to comply with this previously planned schedule, which would have required commencement of installation by the end of February 1993. We are, however, now planning to proceed with installation within the next few months. Accordingly, it is still our intent to complete installation of the pump within the allotted 24-month period from the approval date - i.e., by November 29, 1993, and will keep the Commission apprised of any deviation from this intent.

We appreciate your consideration of this extension of our commencement of the pump installation. Please do not hesitate to contact us if you have any questions.

Sincerely,

DON FUJIMOTO
Director of Development

cc: Ivan Nakatsuka - Austin, Tsutsumi & Associates, Inc.
Mr. Don Fujimoto, Director of Development
Amfac Property Investment Corp.
P.O. Box 10279
Lahaina, HI 96761

Dear Mr. Fujimoto:

Request for Extension of Pump Installation Permits
for Kaanapali P-1 (Well No. 5539-01)
and Kaanapali P-2 (Well No. 5539-02)

We acknowledge receipt of your letter requesting an extension of the start date for installing pumps in your wells. Work was supposed to begin within six months of the date of issuance of the permits, or by May 29, 1992. By this letter, we are extending your start date an additional nine months to February 28, 1993. Please note that the well should be completed within two years of the date of issuance, or by November 29, 1993.

Please notify the Commission on Water Resource Management staff, in writing, before any work covered by the permit begins, or if work cannot begin by February 28, 1993.

Very truly yours,

WILLIAM W. PATY
June 9, 1992

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

Dear Mr. Paty:

RE: Request for Extension of Pump Installation Permits for Kaanapali P-1 Well (State Well No. 5539-01) and Kaanapali P-2 Well (State Well No. 5539-02), Kaanapali, Maui, Hawaii

We regretfully wish to inform you that the six month period required for commencement of the pump installation for our Kaanapali P-1 and P-2 Wells has lapsed and respectfully request a nine month extension to this condition. The requested extension is pursuant to the Commission’s approval of these two wells on November 29, 1991.

This request is based on our decision to replace the existing pump at Honokowai Well A (State Well No. 5637-05) before installing the new pumps for the Kaanapali P-1 and P-2 Wells. We will be submitting under separate cover to the Commission, the Pump Installation permit for Honokowai Well A. It is our intent to complete installation of the P-1/P-2 pumps within the allotted 24-month period from the approval date, and will keep the Commission apprised of any deviation from this intent.

We appreciate your consideration of this nine month extension of our commencement of the pump installation. Please do not hesitate to contact us if you have any questions.

Sincerely,

Don Fujimoto  
Director of Development

DF:tg  
xc:Ivan Nakatsuka-Austin, Tsutsumi & Associates
Mr. Don Fujimoto, Director of Development
Amfac Property Investment Corp.
P.O. Box 10279
Lahaina, HI 96761

Dear Mr. Fujimoto:

Request for Extension of Pump Installation Permits
for Kaanapali P-1 (Well No. 5539-01)
and Kaanapali P-2 (Well No. 5539-02)

We acknowledge receipt of your letter requesting an extension of the start date for installing pumps in your wells. Work was supposed to begin within six months of the date of issuance of the permits, or by May 29, 1992. By this letter, we are extending your start date an additional nine months to February 28, 1993. Please note that the well should be completed within two years of the date of issuance, or by November 29, 1993.

Please notify the Commission on Water Resource Management staff, in writing, before any work covered by the permit begins, or if work cannot begin by February 28, 1993.

Very truly yours,

WILLIAM W. PATY
DIVISION OF WATER RESOURCE MANAGEMENT

FROM: ____________________________  DATE: ________  FILE IN: __________

TO: INITIAL:  PLEASE:  REMARKS:

___ G. AKITA
___ L. Nanbu
___ See Me
___ Take Action By
___ Route to Your Branch

___ E. Sakoda
___ G. Matsumoto
___ Review & Comment
___ Draft Reply

___ E. Lau
___ Acknowledge Receipt
___ Xerox copies

___ L. Chang
___ File
___ Mail

___ Y. Shiroma
___ 

___ 
___ 

FOR YOUR:

___ 
___ 

___ Approval
___ Signature
___ Information

___ M. TAGOMORI
___ S. Kokubun
___ 
___ 

___
TO: Amfac Property Investment Corp.
2530 Kekaa Drive
Lahaina, HI 96761

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 400 gallons per minute pump in Kaanapali P-1 Well (Well No. 5539-01), at Tax Map Key: 4-4-04:01, for private/municipal use, is approved subject to the following conditions:

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

2. The proposed pump installation shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to 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 400 gpm capacity pump in the well.

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.

[Signature]

WILLIAM W. PATY, Chairperson

NOV 29 1991
Date of Issuance

cc: USGS
Department of Health
     Safe Drinking Water Branch
     Ground Water Protection Program
Maui Department of Water Supply
Austin, Tsutsumi & Associates, Inc.
TO: Amfac Property Investment Corp.
2530 Kekaa Drive
Lahaina, HI 96761

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 500 gallons per minute pump in Kaanapali P-2 Well (Well No. 5539-02), at Tax Map Key: 4-4-04:01, for private/municipal use, is approved subject to the following conditions:

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

2. The proposed pump installation shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to 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 500 gpm capacity pump in the well.

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

Date of Issuance

cc: USGS
    Department of Health
    Safe Drinking Water Branch
    Ground Water Protection Program
    Maui Department of Water Supply
    Austin, Tsutsumi & Associates, Inc.
The Honorable William W. Paty, Chairperson
Commission on Water Resource Management
Department of Land and Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Paty:

Well Construction and Pump Installation Applications

Thank you for the opportunity to comment on the following applications for well construction:

Kaanapali P-1 and P-2 (5539-01,02)
Waialae Nui BWS (1747-03)
Kapolei E (2003-04)
Wakiu A - Hana (4600-02)
Puako - Hosbein (5949-02)
Puhi Well 4 (5824-06)
Kalaoa Well A (4358-01)

These wells are not expected to impact Hawaiian home lands. We have no comment at this time.

Warmest aloha,

Hoaliku L. Drake, Chairman
Hawaiian Homes Commission
MEMORANDUM

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

FROM:      Don Hibbard, Administrator

SUBJECT:   Permit Applications for Kaanapali P-1 and Kaanapali P-2
            (Well Nos. 5539-01 & 5539-02)
            Hanakaoo, Lahaina, Maui
            TMK 4-4-04: 1

We have determined that the proposed installation of new pumps will have "no effect" on significant historic sites. There are no known historic sites on both well sites. Also, both areas have been previously disturbed by sugarcane cultivation and access road construction.

Please contact Ms. Annie Griffin at 587-0013 if you have any questions.
Mr. Manabu Tagomori, Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Mr. Tagomori:

SUBJECT: PUMP INSTALLATION PERMIT APPLICATIONS  
KAANAPALI P-1 AND P-2  
STATE WELL NOS. 5539-01 AND -02  
KAANAPALI, MAUI

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

1. Both applications indicate that the subject wells will be for municipal use. If each well is to serve 25 or more individuals at least 60 days per year or will have a minimum of 15 service connections, the applicant will be required to comply with the Department's Administrative Rules, Title 11, Chapter 20, "Potable Water Systems."

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

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

Sincerely,

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

SY:chl

c: Don Fujimoto  
Amfac Property Investment Corp.  
2530 Kekaa Drive  
Lahaina, Maui, HI 96761
September 26, 1991

Mr. Manabu Tagomori
Commission on Water Resource Management
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Tagomori:

Re: Well Construction and Pump Installation Permit Application, Kaanapali P-1 (5539-01) and P-2 (5539-02)

Although we do not have any objections to the installation of the pumps, we question the applicant’s purpose of withdrawing 1.2 million gallons per day.

Sincerely,

Rae M. Shikuma
Director

cc: plng
Mr. Don Fujimoto  
Amfac Property Investment  
Corporation  
2530 Kekaa Drive  
Lahaina, Hawaii 96761

Dear Mr. Fujimoto:

We have received your applications and filing fees for permits to install pumps in two wells (Well Nos. 5539-01,02) at Kaanapali, Maui, (TMK 4-4-04:01). We are reviewing the applications for completeness.

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

Sincerely,

MANABU TAGOMORI  
Deputy Director

NF:bm
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:

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
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<tr>
<td>Maui</td>
<td>Kaanapali P-1</td>
<td>5539-01</td>
<td>Pump Installation</td>
</tr>
<tr>
<td>Maui</td>
<td>Kaanapali P-2</td>
<td>5539-02</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

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 our Regulation Branch, at 548-7541.

Sincerely,

[Signature]

MANABU TAGOMORI  
Deputy Director

NF:bm  
Enc.
MEMORANDUM

TO: Mr. Don Hibbard, Director
   Historic Preservation Program

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

SUBJECT: 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>Kaanapali P-2</td>
<td>5539-02</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

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 our Regulation Branch at 548-7541.

NF:bm
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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<td>5539-02</td>
<td>Pump Installation</td>
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</tbody>
</table>

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

Sincerely,

[Signature]

MANABU TAGOMORI  
Deputy Director

NF:bm  
Enc.
Ms. Rae Shikuma, Director
Department of Water Supply
County of Maui
200 South High Street
Wailuku, Maui, Hawaii 96793

Dear Ms. Shikuma:

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>
</thead>
<tbody>
<tr>
<td>Maui</td>
<td>Kaanapali P-1</td>
<td>5539-01</td>
<td>Pump Installation</td>
</tr>
<tr>
<td>Maui</td>
<td>Kaanapali P-2</td>
<td>5539-02</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

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 our Regulation Branch at 548-7541.

Sincerely,

[Signature]

MANABU TAGOMORI
Deputy Director

NF:bm
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:

<table>
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<tr>
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</tbody>
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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 Manabu Tagomori, Deputy Director at 548-7533.

Very truly yours,

WILLIAM W. PATY

Enc.
Mr. Clayton H. W. Hee
Chairman & Trustee At Large
Office of Hawaiian Affairs
1600 Kapiolani Blvd., Suite 1500
Honolulu, Hawaii 96814

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

Dear Mr. Hee:

Well Construction and Pump Installation Permit 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 Manabu Tagomori, Deputy Director at 548-7533.

Very truly yours,

WILLIAM W. PATY

Enc.
<table>
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<tr>
<th>VENDOR NO.</th>
<th>08309</th>
<th>DEPT OF LAND &amp; NATURAL</th>
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<th>P.O. NO.</th>
<th>DESCRIPTION</th>
<th>INVOICE AMOUNT</th>
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<td>08/05/91</td>
<td>PERMIT P-1</td>
<td></td>
<td>AMFAC PROPERTY INVESTMENT CORP</td>
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CHECK NUMBER: 400554  CHECK DATE: 08/29/91  CHECK AMOUNT: 50.00

DEPT OF LAND & NATURAL RESOURCES
P.O BOX 373
HONOLULU, HI 96809

PAY TO THE ORDER OF $50.00

TWO SIGNATURES REQUIRED FOR AMOUNTS EXCEEDING $10,000.00
APPLICATION FOR Well P-1
STATE WELL NO. 5539-01

WELL CONSTRUCTION PERMIT

INSTRUCTIONS: Please print or type all information and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96808. Application must be accompanied by a non-refundable filing fee of $15.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7242, Hydrology/Geology Section for assistance.

KAANAPALI P-1

1. WELL LOCATION

Island Maui Tax Map Key 4-4-04:01
Address N/A
(Attach a USGS map (scale 1"=2000’) and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER

Firm Name Amfac Property Invest. Corp. Firm Name Pioneer Mill Company, Ltd.
Contact Person Don Fujimoto Contact Person Dave Morell
Address 2530 Kekaa Drive Address P.O. Box 727
Lahaina, HI 96761 Lahaina, HI 96761
Phone 667-7411 Phone 661-3129 or 945-8135(Honolulu)

3. PROPOSED CONTRACTOR FOR: ☐ Well Drilling ☐ Pump Installation
Name Roscoe Moss Company
Address 830 Ahua Street
Contractor’s License No. C-2101
Phone 839-6888

4. PROPOSED WORK

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL 500,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible
Motor: ☐ Diesel ☐ Gas ☐ Electric: 125 Rated Horsepower
Rated Pump Capacity 400 gallons per minute (gpm)

Well Owner (print) AMFAC PROPERTY INV. CORP. Landowner (print) PIONEER MILL COMPANY, LTD.
Signature Date 1/26/91

For Official Use Only:

Field Checked By Latitude
Date _________________________ Hydrologic Unit
Signature _________________________ State Well No. 5539-01
Date _________________________ Quad Map No. N-2
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

APPLICATION FOR WELL P-2
STATE WELL NO. 5539-02

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 272, 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 348-7343, Hydrology/Geology Section for assistance.

KAANAPALI P-2

1. WELL LOCATION

Island MAUI
Tax Map Key 4-4-04:01

Address N/A

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

2. WELL OWNER

Firm Name AMFAC PROPERTY INVEST. CORP.
Contact Person Don Fujimoto
Address 2530 Kekaa Drive
Lahaina, HI 96761
Phone 667-7411

Firm Name PIONEER MILL COMPANY, LTD.
Contact Person Dave Morrell
Address P.O. Box 727
Lahaina, HI 96761
Phone 661-3129 or 945-8135 (Honolulu)

3. PROPOSED CONTRACTOR FOR:

☐ Well Drilling ☑ Pump Installation

Name Roscoe Moss Company
Address 830 Ahua Street
Honolulu, Hawaii 96819

Contractor's License No. C-2101
Phone 839-6888

4. PROPOSED WORK

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

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL

700,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☑ Vertical Turbine ☑ Submersible ☑ Centrifugal
Motor: ☑ Diesel ☑ Gas ☑ Electric: 200 Rated Horsepower
Rated Pump Capacity 500 gallons per minute (gpm)

Well Owner (print) AMFAC PROPERTY INV. CORP. Landowner (print) PIONEER MILL COMPANY, LTD.

Signature [ ] [ ]
Date 7/11/91

Field Checked By
Latitude

Hydrologic Unit

Date

Longitude

State Well No. 5539-02

Quad Map No. M-2
Kaanapali P-2
(Well No. 5539-02)

Kaanapali P-1
(Well No. 5539-01)
May 28, 1991

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

Dear Mr. Paty:

SUBJECT: PRELIMINARY ENGINEERING REPORT FOR KAANAPALI WATER SYSTEM  
WELLS P-1 (#5539-01); P-2 (#5539-02)

Transmitted herewith for your review and comments is a copy of the preliminary engineering report for Wells P-1 (#5539-01) and P-2 (#5539-02). This report has been prepared pursuant to Section 11-20-29, Chapter 20, Title 11, Administrative Rules, Potable Water Systems.

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

Your early attention and reply to this matter will be greatly appreciated. Please respond by June 21, 1991.

Please return the preliminary engineering report with your comments.

Sincerely,

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

Enclosure
KAANAPALI RESORT
WATER SYSTEM
PRELIMINARY ENGINEERING REPORT FOR
KAANAPALI WATER WELLS P-1 AND P-2
KAANAPALI, MAUI, HAWAII

PREPARED FOR
Amfac Property Investment Corporation

PREPARED BY
AUSTIN, TSUTSUMI & ASSOCIATES, INC.
CIVIL ENGINEERS • SURVEYORS
HONOLULU • WAILUKU, MAUI • HILO, HAWAII

APRIL 12, 1991
KAANAPALI RESORT
WATER SYSTEM
PRELIMINARY ENGINEERING REPORT FOR
KAANAPALI WATER WELLS P-1 AND P-2
KAANAPALI, MAUl, HAWAII

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HONOLULU • WAILUKU, MAUl • HILO, HAWAII

APRIL 12, 1991
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KAANAPALI RESORT

WATER SYSTEM

PRELIMINARY ENGINEERING REPORT FOR

KAANAPALI WATER WELLS P-1 AND P-2

1. GENERAL

This Preliminary Engineering report for Kaanapali Water Wells P-1 and P-2 has been prepared pursuant to the State of Hawaii Department of Health (DOH) Public Health Regulation, Chapter 20 of Title 11, Administrative Rules. The section numbers and headings correspond to those presented in the DOH's current guidelines for preparation of the report.

2. GENERAL INFORMATION

A. Project Description

The two wells (P-1 and P-2) are located on agricultural land owned by Pioneer Mill Company, Inc. in the Hanakaoo area (TMK: 4-4-04:01). Exhibits 1 and 2 show the project location and the proposed and existing structures and pipelines.

B. Name of Owner

The owner of the water system will be Kaanapali Water Corp., wholly owned by Amfac Property Investment Corporation.
C. Site Plan

Exhibit 2 is a site plan of the project area with contours indicating a continuous rise from the coastline to the well sites.

3. PHYSICAL AND HYDROLOGICAL CHARACTERISTICS OF AREA

A. Location

The project is located in West Maui in the Honokowai-Hanakaoo area as shown in Exhibits 1 and 2.

B. Climate

The climate in and around Hanakaoo is generally mild with a mean annual temperature of 75 degrees F; rainfall of 32 inches; and humidity varying from 60-80 percent.

C. Topography

The wells are located in agricultural land with slopes from 7 to 15 percent. The area is suitable for planting sugar cane and pineapple, and consists of soils with moderately rapid permeability and slow runoff. The erosion hazard is slight to moderate.¹ (See Section 3.D. for additional discussion.)

D. Geology and Foundation Conditions

The geology of the area in which the wells are drilled is simple and straightforward. The area lies on the flank of the West Maui volcano and is underlain by innumerable thin lava flows of the Wailuku volcanic series. Because

it lies outside the rift zone of the volcano, dikes are either absent or so rare as to have no significant effect on groundwater conditions.

The entire lithologic section that the wells penetrate consists of the Wailuku formation and its weathered surface. The general lithologic sequence is as follows:

<table>
<thead>
<tr>
<th>Depth (Feet)</th>
<th>Material</th>
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<tbody>
<tr>
<td>0 - 2</td>
<td>Silty clay soil</td>
</tr>
<tr>
<td>2 - 15</td>
<td>Heavy clay subsoil</td>
</tr>
<tr>
<td>15 - 50</td>
<td>Highly weathered basalt in place (also called saprolite)</td>
</tr>
<tr>
<td>&gt; 50</td>
<td>Unweathered basalt of Wailuku volcanic series</td>
</tr>
</tbody>
</table>

The soil, subsoil and saprolite zones are relatively soft, but stable nevertheless. It easily supports ordinary construction. The underlying basalt is hard and forms the basement rock of West Maui.

E. Earthquake Considerations and Design Parameters

The project site is not in an area which requires special design considerations for earthquake occurrences.

F. Groundwater Conditions

The wells were driven through about 900 feet of unsaturated rock before encountering the saturated aquifer of the Wailuku formation at about 5 feet above sea level. Each well extends to about 52 feet below sea level. Groundwater occurs in a basal (Ghyben-Herzberg) lens floating on sea water that
extends southward from Honolua-Honokohau to Olowalu and perhaps beyond. The lens discharges to the sea at the coastline and is bounded by dikes of the rift zone about 3.4 miles inland. The wells are located 2.6 miles from the coast.

According to the recently completed West Maui Water Master Plan (Austin, Tsutsumi & Associates, Inc. for County of Maui, Nov. 1990), the wells are located in the Honokowai Aquifer System. Surplus sustainable yield of potable water in this system, under current operation, is 3.4 mgd and, in the Year 2000, the expected surplus will be 2.5 mgd with wells P-1 and P-2 in operation. Pioneer Mill Company and the Kaanapali Golf Course wells pump brackish water, and are downgradient of P-1 and P-2.

The aquifer of the well sites carries high quality potable water. It is very permeable and porous and can be safely exploited by the wells without significantly diminishing the quality or quantity of water now being withdrawn from nearby wells.

G. Flood and Tsunami Considerations

The project site is not in a flood hazard area and, at elevation 925 feet mean sea level (MSL), is not susceptible to inundation from a tsunami. A concrete base pad at the well head with top elevation above the surrounding existing ground level, and grout encasement of the well for the initial 200 feet of depth, should adequately prevent any surface water intrusion into the well.
H. Local Land Use Planning and Zoning Regulations

According to the County of Maui, Department of Public Works, Division of Land Use and Codes Enforcement, the well site is located in State Agricultural zoned land. Therefore, no special use permit is required for construction. Also, according to the Maui County Planning Department, the project site is not in a designated Special Management Area.

I. Discussion of Water Rights and Future Uses by Others

In 1987, the State Water Code was enacted and the Commission on Water Resource Management was created. The Commission has the responsibility of protecting, controlling and regulating the ground and surface water resources throughout the State. All new groundwater source applicants must apply for well permits from the Commission. Amfac Property Investment Corp. obtained a permit from the Commission for drilling Wells P-1 and P-2.

In the land sector where the wells are located, between Honokowai Valley and Hahakea Gulch, there are six wells that produce slightly brackish groundwater for irrigation. These are Puukolii well, Hahakea well and four PMCo. pumping stations (Pumps D, F, G and R). No potable water is taken from this sector at the moment. It would not be reasonable to locate potable water wells downgradient of the two new wells.

4. EXTENT OF WATERWORKS SYSTEM

A. Description of Area Served

The service area is currently, and will continue to be, the Kaanapali Beach Resort, which extends from Honokowai Valley to Hahakea Gulch.
B. **Description of Population Served**

The water is utilized for domestic consumption at the numerous hotels, restaurants, residences and commercial activities of the resort area at a current average daily demand of 2.7 mgd.

C. **Appraisal of Future Requirements for Service**

Proposed expansion of the resort will result in an associated increase in the potable water demand. Amfac’s Water Master Plan is to incrementally develop additional groundwater sources to accommodate the demand.

D. **Provisions for Extending Water Works System**

Extension of the water works system will include installation of transmission waterlines from the two wells to the control tank for the wells, and from this tank to an existing reservoir servicing the resort. These transmission waterlines, and any expansion of the distribution system within the resort area, would not require easement or right-of-way acquisitions.

E. **Fire Protection and Pressure Requirements**

The quantity and the pressure of the water are adequate for fire protection and ordinary use, as provided.

F. **Alternate Solutions Considered**

A study was conducted in November 1980 (Report on Development of Additional Groundwater Sources - Kaanapali Resort Development) by Austin, Tsutsumi & Associates, Inc. to determine alternate sites for groundwater development. Alternate sites in Mahinahina have since been developed. Other
alternate sites involving diked water sources are still not feasible due to extremely difficult access conditions.

G. Environmental and Economic Impacts

The development of the wells and transmission line in agricultural land is not expected to have any long-term negative environmental impact on the environment. No rare or endangered species of flora are known to exist at the site, and all animal life are expected to temporarily relocate to adjacent areas during site clearing and construction.

The construction of the well system will create employment in the construction and construction-related industries and, indirectly through the growth of Kaanapali Beach Resort, create employment in the tourist-related industry. This, in turn, will generate additional taxes in the payment of wages and in the purchase of goods and services.

5. POTENTIAL SOURCES OF CONTAMINATION

A. Description of Well Sites

1. The well sites' coordinates are approximately N 20° 55'50" W 156° 39'30"

2. The wells are at elevations 920-930 feet MSL.

3. As discussed in Section 3.F., the water source is the basal lens that extends southward from Honolua-Honokohau to Olowalu, and perhaps beyond.

4. General Summary of Soil and Substrata

   As explained is Section 3.D., the soil and substrata at the well sites consists of basalt of the Wailuku volcanic series and its weathered surface. This weathered zone, which consists of soil, subsoil and saprolite, is about
50 feet thick. Below it, only the Wailuku series lava flows are found. The weathered zone is stable.

5. **Well Depth and Depth to Groundwater**

The fresh groundwater at the well sites exists in saturated Wailuku basalt as a basal lens having a head between 5 and 6 feet. Site P-1 is at an elevation of 923 feet and P-2 is at 927 feet. Well P-1 extends to 62 feet below sea level and, therefore, has a total depth of 985 feet. Well P-2 extends to 63 feet below sea level and, therefore, has a total depth of 990 feet. (See Section 13 for final elevations and dimensions.)

B. **Design Well Draft**

The design pumping capacities are 400 gallons per minute (gpm) for Well P-1 and 500 gpm for Well P-2. (See Section 12.) The average draft, however, will be less than pump capacity over a 24-hour period, since the wells are not expected to run continuously.

C. **Water Quality Data on Any Existing Wells in the Area**

The closest active well to the two new wells is Amfac's Honokowai deep well located in Honokowai Valley 0.75 miles northeast from Well P-2. (See Exhibit 2.) This well is pumped steadily at about 1.0 mgd and produces high quality potable water. An analysis of the pumped water made by the U.S. Geological Survey on August 6, 1980 showed a chloride concentration of 100 mg/l. The water provided by this well contains neither contamination nor concentrations of constituents outside the limits of the Primary Drinking Water Standards. Similar water is expected at the new wells.
Pioneer Mill owns and operates four pumps in the area below Wells P-1 and P-2. Pump R is located in Honokowai Valley, about 1.3 miles northwest from well P-2; Pump F, at the mouth of the valley approximately one mile downstream from Pump R; Pump D, across Honoapiilani Highway from the Kaanapali Airport; and Pump G, on the Royal Kaanapali Golf Course. (See Exhibit 2.) Pump R has two 3500 gpm (5 mgd) pumps and yields water normally with 400 to 500 mg/l chloride, but occasionally as high as 800 mg/l. Pump F has a capacity of about 4200 gpm (6 mgd) and, in recent years, has been producing water with 1000 mg/l chloride. Pump D has a capacity of 4060 gpm (5.8 mgd) and has a chloride concentration of 710 mg/l. Pump G has a capacity of 1750 gpm (2.5 mgd) and the chloride concentration is 750 mg/l. All of the water from these pumps are applied to land that lies downgradient of the new wells and, therefore, the new wells will not be affected by the fraction of irrigation that percolates below the root zone. The Pioneer Mill Company pumps no longer are used to their previous extent because the plantation has reduced its irrigated acreage.

Kaanapali uses two wells, in addition to Pump G, for irrigation. They are Puukolii Well and Hahakea Well. Puukolii Well is at elevation 444 feet at a distance of 7300 feet from the coast and Hahakea Well is at 480 feet, about 7500 feet inland. Puukolii Well has a pumping capacity of 1000 gpm, while Hahakea Well is fitted with a 625 gpm pump. Puukolii produces water with 450 mg/l chloride and Hahakea, 170 mg/l. The water from these wells are applied to golf
courses for irrigation that lie downgradient of the new wells and, therefore, the new wells will not be affected.²

D. Land Use Classification of Surrounding Area

The surrounding area is planted in sugar cane and its designated land use is for Agriculture.

E. Existing or Potential Sources of Contamination in Recharge Area

The principal recharge area is the high rainfall mountain region of the Conservation Zone. No contamination of high level or basal aquifers originates in this region. Some recharge from the agricultural area around the new well sites takes place, but the amount is minute in relation to the volume that originates further inland. Only sugar cane is grown in the vicinity of the wells. No urbanization or, in fact, continuous human habitation, lies at or upgradient of the well sites.

The only possible contamination that might occur is from agricultural chemicals, but dissolved fertilizer salts in normal groundwater concentrations are benign.

Cattle graze upland below the forest area and wild pigs roam the forests, but contamination of the deep aquifer is not expected from animal wastes. Whatever material is put on the ground surface must traverse about 50 feet of soil-subsoil-saprolite, then about 900 feet of basalt before reaching the water table.

² Mink, John, West Maui Water Study - Lahaina District Sources and Systems - Honokohau to Launiupoko, July 1990.
No sanitary landfills, dumps, cesspools or injection wells are located near or upgradient of the wells. None should be expected to be located there in the future if reasonable planning is practiced.

F. Approximate Groundwater Contours

The groundwater to be developed at the new wells occurs in the deep basal aquifer which, like all basal aquifers in Hawaii, displays a very small groundwater gradient. At the well sites, the head falls between 5 and 6 feet above mean sea level and the downgradient head decreases at the rate of approximately one foot per mile. The groundwater table is parabolic, so that decrease in head per unit distance is greatest as the coast is approached. At the coast, where the lens discharges, head decays to zero.

The groundwater contours are approximately parallel to the coast. The transition from basal to high level water takes place about 3.7 miles inland.

6. SOURCES OF WATER SUPPLY

A. The wells penetrate hundreds of typical lava layers averaging a few feet in thickness. Permeability is high both vertically and horizontally, but in neither direction are there continuous, unobstructed channelways like extensive fissures or faults. The infiltrating water pursues a tortuous, indirect path to the water table. The soil and lava column is highly effective in purifying percolating waters.

B. The wells are constructed with the top two hundred feet of the annulus grouted to prevent surface leakage from getting into the well bore. There are no bodies of contaminated groundwater that could move to the well sites.
C. The basal water table lies about 900 feet below ground surface at the well sites. Since the head is so low everywhere downgradient of the sites, depth to water is approximately the same as ground elevation above mean sea level.

In Honokowai Valley, about .75 mile north of Well P-2, three test holes were located downstream of Amfac's Honokowai deep basal well. These test holes had diameters of about three inches and have been covered and abandoned.

D. The water table has a slope of two feet per mile as determined from reliable measurements made by the U.S. Geological Survey on Napili A (Well 5838-01) and an unused State well downgradient at Alaeloa (Well 5840-01).

E. Site P-1 is on the east bank of Honokowai Ditch and Site P-2 is on the south bank of a minor gulch between Honokowai Stream and Wahikuli Gulch. No evidence exists, nor is there any expectation of, flooding at the sites. Drainage areas above both well sites are small, and earthquake risk is minimal.

F. The quality and quantity of groundwater to be provided by the new wells at recommended pumping rates will remain constant, even during drought periods. The basal aquifer is very large and does not deteriorate, even though recharge during drought diminishes. The decay in quality of Pioneer Mill's pumping stations during drought periods is caused by increase in draft and decrease in volume of Honokohau Ditch water available for irrigation. Neither of these considerations will affect the new wells.

G. The only extraneous (non-natural) substances applied on the ground surface in the area of the new wells and upgradient of it are fertilizers and pesticides.
Dissolved fertilizer salts, in particular nitrate, may eventually reach the water table, but in insignificant concentrations.

H. No evidence at all exists that dissolved fertilizer salts and pesticides will seriously degrade the groundwater quality. If harm were to be predicted, then the quantity and methods of application of fertilizer and pesticides would have to be changed.

I. The likelihood that the groundwater to be developed by the new wells will ever be contaminated is remote unless present land use zoning is drastically altered and point sources of contamination, such as deep injection wells, are permitted. By the time infiltration in the mountains of the principal recharge area reaches the aquifers, it is pure and requires no treatment when pumped.

It would be unreasonable to expect that in the future sanitary landfills, dumps and subsurface disposal sites would be permitted upgradient of the new wells.

7. PROPOSED TREATMENT WORKS

A. Summary Description

A chlorination system will be installed at the 0.15 million gallon control tank for the two wells. (See Exhibit 2 for location of control tank.) Chlorine will be injected into the waterline from the wells just before the water enters the tank.

B. Site for New Treatment Facilities

The new chlorination system will be installed at the new control tank.

C. Plant Modifications

This Section is not applicable.
D. **Basis of Design**

This Section is not applicable.

E. **Waste Disposal**

There are no waste products from the chlorination process.

F. **Operation and Maintenance**

The chlorination system will be fully automatic and, therefore, operation and maintenance procedures (O&M) would be basically limited to periodic inspections and replacement of chlorine cylinders. An O&M manual will be prepared by the design engineer for on-site usage by maintenance personnel.

8. **PUMPING FACILITIES**

This Section is not applicable.

9. **FINISHED WATER STORAGE**

The chlorinated water will be stored in the control tank.

10. **WATER DISTRIBUTION SYSTEMS**

This Section is not applicable.

11. **FINANCING**

The estimated construction cost for the two wells, control tank and waterline from the wells to the tank is $3,800,000. This cost and the operating cost will be paid by the Developer, Amfac Property Investment Corp., and its wholly owned subsidiary, Kaanapali Water Corporation.

12. **PUMP TEST RESULTS**

Exhibits 3 and 4 graphically present the results of the pump tests and include the design pumping rates.
Table 1 presents a summary of the water quality analyses of grab samples taken at the end of each sustained pump test.

The Corrosion (Langelier) Index, although negative, should not present a problem since all new transmission piping will be cement-lined.

13. AS-BUILT CONDITION OF WELLS

Exhibit 5 presents an elevation section depicting the as-built conditions of the two wells from information provided by the drilling company.
**PUMP TEST RESULTS**

**FOR WELL P-1**

**July 31, 1990**

- **Ground Elevation:** 922.3
- **Size of Casing:** 14 IN.
- **Depth of Casing (solid):** 929 FT.
- **Depth of Casing (screened):** 949 FT.
- **Depth of Hole:** 985 FT.
- **Water Temperature:** 19°C
- **Latitude:** N 20°55'47"
- **Longitude:** W 156°39'32"
- **Static Water Level:** 5.78 MSL

**Test Conducted By:** ROSSOE MOSS COMPANY

**AMFAC PROPERTY INVESTMENT CORP.**

**LAHAINA, MAUI, HAWAII**

**KAANAPALI WATER WELLS P-1 & P-2**

**KAANAPALI, MAUI, HAWAII**

**PHYSICAL DATA**

<table>
<thead>
<tr>
<th>Date</th>
<th>Drawdown (Feet)</th>
<th>Pumping Rate (Gallons Per Minute)</th>
</tr>
</thead>
<tbody>
<tr>
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<tr>
<td>Aug. 1, 1990</td>
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</tr>
<tr>
<td>Aug. 2, 1990</td>
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<td>Aug. 3, 1990</td>
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<tr>
<td>Aug. 4, 1990</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Test Conducted By: ROSCOE MÖSS COMPANY

**PHYSICAL DATA**

- **Ground Elevation:** 927.2 MSL
- **Size of Casing:** 14 IN.
- **Depth of Casing (solid):** 932 FT.
- **Depth of Casing (screened):** 982 FT.
- **Depth of Hole:** 990 FT.
- **Water Temperature:** 19°C
- **Latitude:** N 20°55'56"
- **Longitude:** W 156°39'24"
- **Static Water Level:** 4.21 MSL

**KAANAPALI WATER WELLS P-1 & P-2**

KAANAPALI, MAUI, HAWAII

AMFAC PROPERTY INVESTMENT CORP.

LAHAINA, MAUI, HAWAII

EXHIBIT 4
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Units</th>
<th>Maximum Contaminant Level</th>
<th>Measured Results</th>
<th>P-1</th>
<th>P-2</th>
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</thead>
<tbody>
<tr>
<td>Silver</td>
<td>mg/l</td>
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<td>.01</td>
<td>&lt;.01</td>
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<tr>
<td>Arsenic</td>
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<td>&lt;.002</td>
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<td>Barium</td>
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<tr>
<td>Chromium</td>
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<td>.02</td>
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<td>Lead</td>
<td>mg/l</td>
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<td>.018</td>
<td>.03</td>
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<tr>
<td>Mercury</td>
<td>mg/l</td>
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<td>&lt;.0002</td>
<td>&lt;.0002</td>
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<tr>
<td>Selenium</td>
<td>mg/l</td>
<td>0.01</td>
<td>&lt;.002</td>
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<tr>
<td>Fluoride</td>
<td>mg/l</td>
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<td>.18</td>
<td>.11</td>
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<tr>
<td>Chloride</td>
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<td>91</td>
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<tr>
<td>Nitrate (as N)</td>
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<tr>
<td>Calcium</td>
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<td>5.1</td>
<td>24.5</td>
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<tr>
<td>pH</td>
<td>units</td>
<td>+</td>
<td>8.2</td>
<td>8.5</td>
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<tr>
<td>Alkalinity as (CaCO3)</td>
<td>mg/l</td>
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<td>57</td>
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<tr>
<td>Total Dissolved Solids</td>
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<td>+</td>
<td>235</td>
<td>290</td>
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<tr>
<td>Total Coliform</td>
<td>col/100</td>
<td>+</td>
<td>T.N.T.C.*</td>
<td>T.N.T.C.*</td>
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</tr>
<tr>
<td>(Langelier) Index</td>
<td></td>
<td>+</td>
<td>(-)1.1</td>
<td>(-).12</td>
<td></td>
</tr>
<tr>
<td>Endrin</td>
<td>mg/l</td>
<td>0.0002</td>
<td>ND**</td>
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<tr>
<td>Lindane</td>
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<tr>
<td>Methoxychlor</td>
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<tr>
<td>Toxaphene</td>
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<tr>
<td>2,4-D</td>
<td>mg/l</td>
<td>0.10</td>
<td>ND</td>
<td>&lt;.0005</td>
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</tr>
<tr>
<td>1,4,5-TP Silvex</td>
<td>mg/l</td>
<td>0.01</td>
<td>ND</td>
<td>&lt;.0005</td>
<td></td>
</tr>
</tbody>
</table>

* (non-coliform)
** Not Detected
+ No maximum contaminant level established in Department of Health Regulations.

Analyses conducted by Brewer Environmental Services, Papaikou, Hawaii.
**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 313, Honolulu, HI 96809. An as-built drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-1549, Hydrology, Geology Section for assistance.

### A. STATE WELL NO. 5539-02

### B. LOCATION
Leahania, Maui

### C. WELL OWNER
Amfac Property Investment Corp.

### D. DRILLING OR PUMP INSTALLATION CONTRACTOR
Roscoe Moss Co.

### E. TYPE OF Rig
Cable Tool

### F. DATE OF WELL COMPLETION
Feb. 1991

### G. GROUND ELEVATION (masl) 927.21 ft.

- Top of Drilling Platform (masl) 957 ft.
- Height of drilling platform above ground surface 0 ft.
- Bench mark and method used to determine ground elevation Amfac Hung 990 ft.

### H. TOTAL DEPTH OF WELL BELOW GROUND 990 ft.

<table>
<thead>
<tr>
<th>HOLE SIZE</th>
<th>16 inch dia. from 0 ft. to 957 ft. below ground</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12 inch dia. from 957 ft. to 990 ft. below ground</td>
</tr>
</tbody>
</table>

### J. CASING INSTALLED:

- 14 in. I.D. x 312 in. wall solid section to 927 ft. below ground
- 14 in. I.D. x 132 in. wall perforated section to 957 ft. below ground

### K. ANNULUS:
- Grouted from 0 ft. to 200 ft. below ground
- Gravel packed from 200 ft. to 927 ft. below ground

### L. PERMANENT PUMP INSTALLATION:
- Pump type, make, serial no: Capacity gpm
- Motor type, H.P., voltage, F.P.M.
- Depth of pump intake setting H. below: which elevation is ft.
- Depth of bottom of airline H. below: which elevation is ft.

### M. PROPOSED USE

### N. INITIAL WATER LEVEL 925 ft. below ground.

**DATE AND TIME OF MEASUREMENT:** 12/12/90

### O. INITIAL CHLORIDE

**DATE AND TIME OF SAMPLING:** 12/12/90

### P. PUMPING TESTS: Reference point (R.P.) used: 927.21 which elevation is ft.

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Rate (gpm)</th>
<th>Draw down (ft)</th>
<th>Temp (°F)</th>
<th>Elapsed Time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw down (ft)</th>
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</thead>
<tbody>
<tr>
<td>1/14/91</td>
<td>923</td>
<td>923</td>
<td>990</td>
<td>250</td>
<td>20</td>
<td>8:00a.m.</td>
<td>8:00a.m.</td>
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<td>923</td>
<td>990</td>
<td>250</td>
<td>20</td>
<td>8:00a.m.</td>
<td>8:00a.m.</td>
<td>300</td>
<td>16.17</td>
</tr>
</tbody>
</table>

### 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 75</td>
<td>Boulder</td>
<td>565 to 615</td>
<td>Hard Rock-Blue</td>
<td></td>
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<tr>
<td>75 to 80</td>
<td>Hard Rock</td>
<td>615 to 635</td>
<td>Puka Rock</td>
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</tr>
<tr>
<td>80 to 115</td>
<td>Puka Rock</td>
<td>655 to 715</td>
<td>Puka &amp; Hard Rock</td>
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<tr>
<td>115 to 135</td>
<td>Puka Rock</td>
<td>715 to 735</td>
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<td>Puka Rock</td>
<td>735 to 810</td>
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<tr>
<td>210 to 255</td>
<td>Hard Rock</td>
<td>810 to 887</td>
<td>Hard Rock</td>
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<tr>
<td>255 to 280</td>
<td>Puka Rock</td>
<td>887 to 915</td>
<td>Puka Rock</td>
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</tr>
<tr>
<td>280 to 370</td>
<td>Puka &amp; Cinders</td>
<td>915 to 928</td>
<td>Hard Rock</td>
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</tr>
<tr>
<td>370 to 435</td>
<td>Puka &amp; Cinders</td>
<td>928 to 950</td>
<td>Cinders</td>
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<tr>
<td>435 to 510</td>
<td>Puka &amp; Cinders</td>
<td>950 to 995</td>
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<tr>
<td>510 to 655</td>
<td>Puka &amp; Cinders</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

**LAT. 20° 55' 59"**

**LONG 156° 39' 21"**

### REMARKS:

**Submitted by (print)**

**Signature**

**Date**

**Title**
FEB. 9-91
ELV, -927.21
WATER LEVELS -923 Ft.
AIR LINE - 959.5 Ft.
INTAKES - 960 Ft.
SUCKING PIPE 20 Ft. UNDER THE BOWL.
CASING FROM ELEVATION LEVELS 957 Ft.
<table>
<thead>
<tr>
<th>DATE</th>
<th>AIRLINE</th>
<th>GPM</th>
<th>TIME</th>
<th>CHLORIDE DROP</th>
</tr>
</thead>
<tbody>
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<td>DATE</td>
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<td>GPM</td>
<td>TIME</td>
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<td>8:00</td>
<td>500</td>
<td>12:00 AM</td>
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Time & Signature
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2-10-91  12:00 AM          380
2-12-91  6:00 AM          390
2-12-91  12:00 PM          400
2-12-91  8:00 AM          390
2-11-91  4:00 PM          395
**FOR DRILLER'S USE**

**Job Name**

**FOR OFFICIAL USE**

**State of Hawaii**

**DIVISION OF WATER AND LAND DEVELOPMENT**

**DRILLER'S REPORT**

**DESCRIPTION**

<table>
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<tr>
<th>Date of report</th>
<th>Aug. 20, 1990</th>
<th>Person filing report</th>
<th>L.H. Runnelis</th>
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A. **OWNER**

Amfac

B. **GENERAL LOCATION**

Lahaina, Maui

C. **DRILLING COMPANY**

Roscoe Moss Company

D. **TYPE OF RIG**

Cable tool

**DRILLING COMPLETED**

8/90

**STATE**

**DEPARTMENT**

**OF WATER AND LAND DEVELOPMENT**

**ISLAND**

**MAUI**

**WELL NAME**

P-1

**REMARKS:**

- Grouted
- Louver
- Location

**ELEVAION:**

- Top of drilling platform: 924 ft.
- Height of drilling platform above ground surface: 0 ft.
- Bench mark and method used to determine elevation:

**HOLE SIZE:**

- 12 inch dia. to 985 ft. below drilling platform.
- Depth of bottom of airline:

**CASING INSTALLED:**

- 14 in. I.D. x /32 in. wall solid section to 925 ft. below drilling platform.
- 14 in. I.D. x /32 in. wall perforated section to 945 ft. below drilling platform.

**ANNELUS:**

- Grouted 0 ft. to 200 ft. below drilling platform.
- Gravel packed 200 ft. to 945 ft. below drilling platform.

**PERMANENT PUMP INSTALLATION:**

- Pump type, make, serial no.
- Motor type, H.P., voltage, r.p.m.

**HYDROLOGY**

**INITIAL WATER LEVEL:**

- 918.5 ft. below drilling platform.
- Date of measurement: 6/29/90

**INITIAL CHLORIDE:**

- 90 ppm, total depth of well: 985 ft. below drilling platform

**PUMPING TESTS:**

- Reference point (R.P.) used:
- Sample point:
- Sampling Date:
- Start water level: 918.5 ft. below R. P.
- End water level: 918.5 ft. below R. P.
- Depth of well: 985 ft. below R. P.
- Depth of pump intake setting: ft. below which elevation is ft.
- Depth of bottom of airline:

**SUBSURFACE FORMATION**

<table>
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<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level</th>
<th>Depth, ft.</th>
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<td>20. to 25</td>
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<td>852 to 885</td>
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<td>hard blue rock</td>
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**N. REMARKS:**

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

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June 26, 1989

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

Dear Mr. Paty:

Subject: WELL CONSTRUCTION PERMIT APPLICATIONS
KAANAPALI WELLS P-1 AND P-2
STATE WELL NOS. 5539-01 and 02
LAHAINA, MAUI

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

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

2. Section 11-20-29 of Chapter 20 requires that a new source of potable water serving 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.

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

Very truly yours,

JOHN C. LEWIN, M.D.
Director of Health
WELL CONSTRUCTION PERMIT

for

Kaanapali Well P-1
Well No. 5539-01
Kaanapali, Maui

TO: Amfac Property Investment Corp.
2530 Kekaa Drive
Lahaina, Maui 96761

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. 5539-01 within Tax Map Key: 4-4-04:01, for municipal use, is approved subject to the following conditions:

1. The Division of Water and Land Development (DOWALD), Geology-Hydrology Section, shall be notified at 548-7619, before any work covered by this permit commences.

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

3. The following shall be submitted to DOWALD, P.O. Box 373, Honolulu, Hawaii 96809 within 30 days after completion of the well:
   a. Well Completion Report.
   b. 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 other applicable laws, rules, and ordinances.

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

WILLIAM W. PATY

JUN 22 1989

Date of Issuance

cc: USGS
    Department of Health
    Drinking Water Program
    Ground Water Protection Program
    Maui Department of Water Supply
WELL CONSTRUCTION PERMIT

for

Kaanapali Well P-2
Well No. 5539-02
Kaanapali, Maui

TO: Amfac Property Investment Corp.
2530 Kekaa Drive
Lahaina, Maui 96761

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. 5539-02 within Tax Map Key: 4-4-04:01, for municipal use, is approved subject to the following conditions:

1. The Division of Water and Land Development (DOWALD), Geology-Hydrology Section, shall be notified at 548-7619, before any work covered by this permit commences.

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

3. The following shall be submitted to DOWALD, P.O. Box 373, Honolulu, Hawaii 96809 within 30 days after completion of the well:
   a. Well Completion Report.
   b. 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.
WELL CONSTRUCTION PERMIT
Well No. 5539-02

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 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.

JUN 22 1989

WILLIAM W. PATY

Date of Issuance

cc: USGS
    Department of Health
    Drinking Water Program
    Ground Water Protection Program
    Maui Department of Water Supply
<table>
<thead>
<tr>
<th>TO: M. TAGOMORI</th>
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<td>G. Akita</td>
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DATE: 5
FILE IN: 1
FROM: DM
OF WATER RESOURCE MANAGEMENT

Rev. 12/88
June 5, 1989

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

Dear Mr. Tagomori:

Subject: Well Construction Permit Applications  
P-1 & P-2 (5539-01, 02)

Per your request for comments relative to Kaanapali's (Amfac) well construction permit applications, the Department of Water Supply is deeply concerned over the potential impact of these planned wells by Amfac on the wells that will be developed by the state for its large housing project in Lahaina.

As you are aware, the state's HFDC is proposing to develop approximately 1,100+ acres for low and moderate income housing units in Lahaina. The proposed project by the state is estimated to require 3 million gallons per day to 4 million gallons per day when fully developed. In order to implement the state's proposed housing project, we have advised HFDC and other state agencies to develop ground water wells near and or in the vicinity of Amfac's proposed well sites.

Before the State Commission on Water Resource Management grants Amfac well construction permit, there should be some assurance of adequate water supply for the state's housing projects. Also, there should be some assurance that the quality of that aquifer, where Amfac is proposing to drill its wells, will not be degraded or threatened in any way.
Mr. Manabu Tagomori
Deputy Director
Commission on Water Resource Management

I wish to thank you for allowing us to review the application and should you need further clarification, please feel free to contact me.

Sincerely,

Vince G. Bagoyo, Jr., Interim Director

VGB/ao

cc: Carl Kaiama, DWS Engr.
Nolan Perreira, DWS Interim Deputy Director
Joseph Conant, HFDC
Mentioned John C. Lewis, M.D.,
Director of Health
Department of Health
1978 University Street
Ketchikan, Alaska 99901

Attention: Mr. Thomas Shumard, Wildlife Habitat Program

Date: June 1, 1989

Cell Construction Permit Applications

In accordance with the Department of Fish and Game's Permits and Administrative Rules, Section 33-400-1006, we are currently reviewing the following permit applications:

- Cell A, Permit No. 101-400
- Cell B, Permit No. 201-400
- Cell C, Permit No. 301-400

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 Mr. Howard Coover at 563-1551.

Yours truly,

[Signature]

[Position]
May 30, 1987

Honorable Vince Taaffe, Director
Department of Water Supply
County of Maui
200 S. High Street
Wailuku, Maui, Hawaii 96793

Dear Mr. Taaffe:

High Construction Permit Applications

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

Tangalagi Wells 1-1 and 2-1 (5530-01,02)

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 Don Luna at 548-5642.

Sincerely,

[Signature]

Deputy Director

[Title]
APPLICATION FOR WELL P-1

1. WELL LOCATION

Island MAUI Tax Map Key 4-4-04:01
Address N/A

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

2. WELL OWNER

Firm Name AMFAC PROPERTY INV. CORP.
Contact Person Don Fujimoto
Address 2530 Kekaa Drive
Lahaina, HI 96761
Phone 667-7411

Firm Name PIONEER MILL CO., LTD.
Contact Person John Hance or Bert Hatton
Address P. O. Box 727
Lahaina, HI 96761
Phone 661-3129 or 945-8135(Hn1)

3. PROPOSED CONTRACTOR FOR: ☐ Well Drilling ☐ Pump Installation
Name Not yet determined.
Address

Contractor's License No.

4. PROPOSED WORK

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

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

5. PROPOSED USE

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

6. PROPOSED AMOUNT OF WITHDRAWAL 500,000 gallons per day

7. PROPOSED PUMP INFORMATION

Pump Type: ☐ Vertical Turbine ☐ Submersible
☐ Centrifugal
Motor: ☐ Diesel ☐ Gas ☐ Electric: 250 Rated Horsepower
Rated Pump Capacity 700 gallons per minute (gpm)

Well Owner (print) AMFAC PROPERTY INV. CORP
Landowner (print) PIONEER MILL CO., LTD.
Signature Date 5/17/89 Vice President
178 Vice President

For Official Use Only:
Field Checked By ___________________________ Latitude ___________________________ Hydrologic Unit ___________________________
Date ___________________________ Longitude ___________________________ State Well No. 539-01(P-1)
Briefly describe the proposed work:

Drill and case Kaanapali Water Well P-1

PROPOSED SECTION OF WELL

Elevation at top of casing 955 ft., msl.

Cement Grout 200 ft.

Hole Dia. 21 in.

Total Depth 985 ft.

Rock Packing 770 ft.

Ground Elev. 950 ft., msl*

Solid Casing:
Material USS Corten or Kaiser Kaisaloy
Length 955 ft.
Diameter 16 in.
Wall thickness 5/16 in.

Casing: / /Perforated / %/Screen
Material USS Corten or Kaiser Kaisaloy
Length 20 ft.
Diameter 16 in.
Wall thickness 5/16 in.
Openings sq. in./L.F.

Open Hole:
Length 15 ft.
Diameter 14 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.
Water demand of the Kaanapali Resort area which now averages about 4.6 mgd (2.6 mgd domestic, 2.0 mgd golf course irrigation) is expected to rise to 9.7 mgd in the year 2000 (6.7 mgd domestic, 3.0 mgd golf course irrigation). An increment to reduce the difference between current and future domestic demand (4.1 mgd) needs to be planned and placed in operation within a few years. The first increment will allow for an additional average demand of 1.0 to 1.5 mgd and will consist of two wells. The remainder of the difference (about 3 mgd) will be installed in the decade of the 90s.

The Kaanapali groundwater source lies in Sector B of the Lahaina District, which reaches from Kahana Valley south to Launiupoko. In this Sector most of Pioneer Mill’s sugar cane is grown and irrigated, about 5500 acres, and the County pumps less than 1 mgd for domestic use. Maui Pine recently started to plant pineapple in the northern part of the Sector.

The sustainable yield of the groundwater resources of Sector B depends on the volume rate of water used in irrigation of sugar cane and the origin of this supply. Currently a significant fraction is obtained from Honokohau Ditch, which originates in Sector A, thus representing importation of water and thereby adding to the water balance in Sector B. Other sources of irrigation are stream flow and groundwater taken from within Sector B. The water balance of the Sector for present and future conditions of irrigation are given in a memorandum by J.F. Mink submitted to Kaanapali Water Corp. in May, 1988.

In that memo the expected allowable draft in Sector B for domestic-golf course use in the year 2000 totals 14 mgd. The water balance was computed on the assumption that Pioneer Mill Company will irrigate 5500 acres of cane by the drip method with a portion of the water diverted from Honokohau Ditch. Total average non-plantation demand is also expected to be about 14 mgd allocated as follows:

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<th>Source</th>
<th>Demand (mgd)</th>
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<tr>
<td>County</td>
<td>4.5</td>
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<tr>
<td>Kaanapali domestic</td>
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<tr>
<td>Kaanapali golf</td>
<td>3.0</td>
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<td>Total</td>
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</table>
The anticipated County demand of 4.5 mgd includes 4 mgd for the Housing Finance and Development Corporation residential development, which is a commitment not included in previous water demand estimates.

If all of the County’s expectations are exercised, and if Pioneer Mill continues to grow sugar with irrigation water provided by Honokohau Ditch, surface runoff and local groundwater, then the addition of Kaanapali’s anticipated average demand of 9.7 mgd will account for the remainder of sustainable yield available for domestic and golf course use in the year 2000.

The Next Kaanapali Wells

The two new wells will be located between Honokowai and Hanakaoo inland of Honokowai Ditch at an elevation of approximately 900 feet. Experience throughout the Lahaina District has showed that a head of at least 5 feet in the basal lens is required to insure production of potable groundwater at reasonable rates between 0.5 and 1.0 mgd per well. At lower heads the allowable production rate drops sharply. Virtually all domestic wells in Sectors A and B are located along the 5 feet basal groundwater head contour, about 10,000 to 14,000 inland of the coast.

The exact site of the wells can be adjusted to take advantage of accessibility and minimization of other costs as long as the criterion of head is satisfied. Also, spacing between the wells does not have to be more than a few hundred feet because the capacity of each well will be 1 mgd or less and aquifer permeability is very high, 1500 ft/day or more, a combination which results in essentially non-interfering drawdowns. A safe distance of separation is 300 to 500 feet.

Operation of the existing Kaanapali wells (P-4, P-5 and P-6) has proved that for a typical well along the 5 feet head contour the average output should be about 0.5 mgd to guarantee water of less than 200 mg/1 chloride. The pump capacity in the well may be higher than the average daily output, but the maximum installed capacity should be about 1 mgd or less. Occasionally local geological conditions where the well penetrates the saturated aquifer impede upward movement of the transition zone during pumping, allowing yields to be higher than normal. However, it is impossible to predict specific favorable sites, and planning must assume occurrence of typical aquifer conditions and assign safe production rates.
Preliminary Well Specifications

The Lahaina basal lens is thin and can't stand abusive exploitation like the thick lens of southern Oahu can. Drilling depth below sea level must be carefully decided upon at the time of terminal drilling to take advantage of local hydrogeological conditions such as hard basalt (impediment to groundwater flow) and clinker (highly permeable formation). The initial specified depth should be set at 35 feet below sea level with an option to increase to 50 feet below sea level. Wells P-4, P-5 and P-6 terminate at 50 feet below sea level, but new wells can be shallower.

The specifications for P-4, P-5 and P-6 are generally applicable to the new wells except for pump size.

Ground elevation ................ 900 ft.
Depth below sea level .......... 35 ft.
Optional depth BSL ............ 50 ft.
Blank casing .................... 16 in.
Casing depth BSL ............... 0 ft.
Screen placement ............... 0 to 20 ft. BSL

Testing will consist of a step drawdown sequence starting at 300 gpm and increasing by 100 gpm increments to 1000 gpm, each level to be held 1 hour. After a day's shutdown, a sustained test at 700 gpm will be held for 72 hours.

The test results will determine the pump size to be installed. However, it should not be anticipated that pump capacity will be greater than 700 gpm (1 mgd); it may be 500 gpm (.72 mgd). The wells should not be expected to provide an average of more than 0.5 mgd per well over the long term.

[Signature]
APPLICATION FOR WELL P-2

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 96829. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7543, Hydrology/Geology Section for assistance.

1. WELL LOCATION

   Island MAUI   Tax Map Key 4-4-04:01
   Address N/A

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

2. WELL OWNER

   Firm Name AMFAC PROPERTY INV. CORP.
   Contact Person Don Fujimoto
   Address 2530 Keaka Drive
   Lahaina, HI 96761
   Phone 667-7411

   LANDOWNER

   Firm Name PIONEER MILL CO., LTD.
   Contact Person John Hance or Bert Hatton
   Address P. O. Box 727
   Lahaina, HI 96761
   Phone 661-3129 or 945-8135(Hn1)

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

   Name Not yet determined.
   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)    □ Other (specify)

6. PROPOSED AMOUNT OF WITHDRAWAL 500,000 gallons per day

7. PROPOSED PUMP INFORMATION

   Pump Type: □ Vertical Turbine    □ Submersible
   □ Centrifugal
   Motor: □ Diesel    □ Gas    □ Electric: 250 Rated Horsepower
   Rated Pump Capacity 700 gallons per minute (gpm)

   Well Owner (print) AMFAC PROPERTY INV. CORP., Landowner (print) PIONEER MILL CO., LTD.

   Signature ____________________________ Signature ____________________________
   Date 5/1/82 Date 5/1/82

   For Official Use Only:
   Field Checked By ____________________________ Latitude ____________________________ Hydrologic Unit ____________________________
   Date ____________________________ Longitude ____________________________ State Well No. 5539-02(P-2)
Briefly describe the proposed work:

Drill and case Kaanapali Water Well P-2

PROPOSED SECTION OF WELL

Elevation at top of casing 925 ft., msl.

Ground Elev. 920 ft., msl*

Cement Grout 200 ft.

Solid Casing: Material USS Corten or Kaiser Kaisaloy
   Length 925 ft.
   Diameter 16 in.
   Wall thickness 5/16 in.

Hole Dia. 21 in.

Casing: / /Perforated /X/Screen
   Material USS Corten or Kaiser Kaisaloy
   Length 20 ft.
   Diameter 16 in.
   Wall thickness 5/16 in.
   Openings -- sq. in./L.F.

Total Depth 955 ft.

Rock Packing 740 ft.

Open Hole:
   Length 15 ft.
   Diameter 14 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.
Water demand of the Kaanapali Resort area which now averages about 4.6 mgd (2.6 mgd domestic, 2.0 mgd golf course irrigation) is expected to rise to 9.7 mgd in the year 2000 (6.7 mgd domestic, 3.0 mgd golf course irrigation). An increment to reduce the difference between current and future domestic demand (4.1 mgd) needs to be planned and placed in operation within a few years. The first increment will allow for an additional average demand of 1.0 to 1.5 mgd and will consist of two wells. The remainder of the difference (about 3 mgd) will be installed in the decade of the 90s.

The Kaanapali groundwater source lies in Sector B of the Lahaina District, which reaches from Kahana Valley south to Launiupoko. In this Sector most of Pioneer Mill’s sugar cane is grown and irrigated, about 5500 acres, and the County pumps less than 1 mgd for domestic use. Maui Pine recently started to plant pineapple in the northern part of the Sector.

The sustainable yield of the groundwater resources of Sector B depends on the volume rate of water used in irrigation of sugar cane and the origin of this supply. Currently a significant fraction is obtained from Honokohau Ditch, which originates in Sector A, thus representing importation of water and thereby adding to the water balance in Sector B. Other sources of irrigation are stream flow and groundwater taken from within Sector B. The water balance of the Sector for present and future conditions of irrigation are given in a memorandum by J.F. Mink submitted to Kaanapali Water Corp. in May, 1988.

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- County ......................... 4.5 mgd
- Kaanapali domestic ............ 6.7 mgd
- Kaanapali golf .................. 3.0 mgd

Total ... 14.2 mgd
The anticipated County demand of 4.5 mgd includes 4 mgd for the Housing Finance and Development Corporation residential development, which is a commitment not included in previous water demand estimates.

If all of the County's expectations are exercised, and if Pioneer Mill continues to grow sugar with irrigation water provided by Honokohau Ditch, surface runoff and local groundwater, then the addition of Kaanapali's anticipated average demand of 9.7 mgd will account for the remainder of sustainable yield available for domestic and golf course use in the year 2000.

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The two new wells will be located between Honokowai and Hanakaoo inland of Honokowai Ditch at an elevation of approximately 900 feet. Experience throughout the Lahaina District has showed that a head of at least 5 feet in the basal lens is required to insure production of potable groundwater at reasonable rates between 0.5 and 1.0 mgd per well. At lower heads the allowable production rate drops sharply. Virtually all domestic wells in Sectors A and B are located along the 5 feet basal groundwater head contour, about 10,000 to 14,000 inland of the coast.

The exact site of the wells can be adjusted to take advantage of accessibility and minimization of other costs as long as the criterion of head is satisfied. Also, spacing between the wells does not have to be more than a few hundred feet because the capacity of each well will be 1 mgd or less and aquifer permeability is very high, 1500 ft/day or more, a combination which results in essentially non-interfering drawdowns. A safe distance of separation is 300 to 500 feet.

Operation of the existing Kaanapali wells (P-4, P-5 and P-6) has proved that for a typical well along the 5 feet head contour the average output should be about 0.5 mgd to guarantee water of less than 200 mg/1 chloride. The pump capacity in the well may be higher than the average daily output, but the maximum installed capacity should be about 1 mgd or less. Occasionally local geological conditions where the well penetrates the saturated aquifer impede upward movement of the transition zone during pumping, allowing yields to be higher than normal. However, it is impossible to predict specific favorable sites, and planning must assume occurrence of typical aquifer conditions and assign safe production rates.
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The specifications for P-4, P-5 and P-6 are generally applicable to the new wells except for pump size.

Ground elevation ............ 900 ft.
Depth below sea level ....... 35 ft.
Optional depth BSL ........... 50 ft.
Blank casing ................. 16 in.
Casing depth BSL ............ 0 ft.
Screen placement ............ 0 to 20 ft. BSL

Testing will consist of a step drawdown sequence starting at 300 gpm and increasing by 100 gpm increments to 1000 gpm, each level to be held 1 hour. After a day's shutdown, a sustained test at 700 gpm will be held for 72 hours.

The test results will determine the pump size to be installed. However, it should not be anticipated that pump capacity will be greater than 700 gpm (1 mgd); it may be 500 gpm (.72 mgd). The wells should not be expected to provide an average of more than 0.5 mgd per well over the long term.
LOCATION MAP
KAANAPALI WATER WELLS P-1 AND P-2
TO Division of Water and Land Development  
Department of Land and Natural Resources  
State of Hawaii  
P.O. Box 373  
Honolulu, Hawaii 96809

WE ARE SENDING YOU XX Attached XXshop drawings XXPrints XXPlans XXSamples XXSpecifications XXCopy of letter XXChange order \X See Below

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<td>Application for Well P-1 with attached Hydrogeology report by John Mink (dated 1/30/89) and Location maps</td>
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<td>Application for Well P-2 with attached Hydrogeology report by John Mink (dated 1/30/89) and Location maps</td>
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REMARKS Please do not hesitate to call me at 533-3646 for any discussion.

Don Fujimoto, w/encl.
John Mink, w/encl.

Copy to: Ken Kurokawa, w/encl.

Signed: IVAN K. NAKATSUKA, P.E.
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