## Wells Construction Permit Checklist

**WELL NAME or LOCATION:** Kalaa A  
**ISLAND:** Hawaii  
**WELL NUMBER:** 4358-01  
**Tax Map Key:** 7-3-04:17

### Owner/Operator

<table>
<thead>
<tr>
<th>Firm Name</th>
<th>County of Hawaii, DWS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact Person</strong></td>
<td>H. William Sewake</td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td>25 Apuni Street</td>
</tr>
<tr>
<td></td>
<td>Hilo, Hawaii 96720</td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td></td>
</tr>
</tbody>
</table>

### Landowner

<table>
<thead>
<tr>
<th>Firm Name</th>
<th>same</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Contact Person</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Address</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Phone</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Date application received:** 9-13-91  
**Date acknowledged receipt/request more info:** 9-26-91  
**Date application accepted:**  
**Suspense date (90 days):** N/A  
**Date filing fee deposited:**  

**Application sent to following:**

<table>
<thead>
<tr>
<th>Department/Address</th>
<th>Date sent</th>
<th>Comments received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Hawn Home Lands</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Dept. of Health</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Office of Hawn. Affairs</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>State Hist Pres Div</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Dept/Ed of Water Supply</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Sierra Club L. D. F.</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Kooleauloa NR #28 (Oahu)</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Dept. Pub. Wrks (Hawaii)</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Additional List (Molokai)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

**REMARKS:**

---

**Date application received:** 9-13-91  
**Date acknowledged receipt/request more info:** 9-26-91  
**Date application accepted:**  
**Suspense date (90 days):** N/A  
**Date filing fee deposited:**  

**Application sent to following:**

<table>
<thead>
<tr>
<th>Department/Address</th>
<th>Date sent</th>
<th>Comments received</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Hawn Home Lands</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Dept. of Health</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Office of Hawn. Affairs</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>State Hist Pres Div</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Dept/Ed of Water Supply</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Sierra Club L. D. F.</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Kooleauloa NR #28 (Oahu)</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Dept. Pub. Wrks (Hawaii)</td>
<td>9/26/91</td>
<td></td>
</tr>
<tr>
<td>Additional List (Molokai)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

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

**REMARKS:**

---
**PUMPING TEST RECORD**

for

**KALADA EXPL.**

(Well 4358-01)

<table>
<thead>
<tr>
<th>Island</th>
<th>Project or Job No.</th>
<th>19</th>
</tr>
</thead>
</table>

### Description of Well---

1. Elevation: ground surface 1799 ft., top of casing ___ ft., rotary table ___ ft., referenced to ____ Dechmark.
2. Total depth of well ___ ft., or ___ ft. elevation, msl
3. 14 in. solid casing to 1740 ft. depth, perforated to ___ ft. depth
4. Static water level on ___ ft. below ground surface, top of casing; or 277.9 ft. elevation msl

### Description of Pump and Pump Setting---

5. **same type pump with ____ stage bowl assembly**
6. Gasoline diesel, electric, power with ____ horsepower
7. Shaft speed: 1450 rpm at 1000 gpm flow
8. Depth of pump intake: 1450 ft. below 3R, or 75.15 ft. elev. msl
9. Depth of airline bottom: 1400 ft. below 3R, or 257.1 ft.elev. msl
10. Center of gage: ___ ft. elev., msl. Flow measured with FlowMeter
11. Test conducted by ____________

### Data Pump In Airline

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline PSL (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JANUARY</strong></td>
<td>14, 1991</td>
<td>1020</td>
<td>0</td>
<td>106.0</td>
<td></td>
<td></td>
<td>179129000</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1030</td>
<td>0</td>
<td>106.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1045</td>
<td>0</td>
<td>106.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**START PUMPING - ADJUST TO 500 GPM -**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline PSL (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1050</td>
<td>500</td>
<td>87.0</td>
<td>59.1</td>
<td>59.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1055</td>
<td>500</td>
<td>87.0</td>
<td>59.1</td>
<td>59.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>500</td>
<td>87.0</td>
<td>43.9</td>
<td>43.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1120</td>
<td>500</td>
<td>96.0</td>
<td>23.1</td>
<td>23.1</td>
<td></td>
<td>16.0</td>
<td></td>
</tr>
<tr>
<td>1145</td>
<td>500</td>
<td>96.0</td>
<td>23.1</td>
<td>23.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>500</td>
<td>96.0</td>
<td>23.1</td>
<td>23.1</td>
<td></td>
<td>16.0</td>
<td></td>
</tr>
</tbody>
</table>

**ADJUST TO 700 GPM -**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline PSL (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1215</td>
<td>122</td>
<td>87.5</td>
<td>42.7</td>
<td>42.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1230</td>
<td>122</td>
<td>86.5</td>
<td>45.0</td>
<td>45.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1245</td>
<td>122</td>
<td>86.0</td>
<td>46.2</td>
<td>46.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300</td>
<td>115</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**PUMPING TEST RECORD**

**Kalada Exp.**
**Well 4354-01**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping Rate (gpm)</th>
<th>Airline</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY 14, 1991</td>
<td>2</td>
<td>715</td>
<td>36.0</td>
<td>46.2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **ADJUST RATE TO 1000 GPM** -

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping Rate (gpm)</th>
<th>Airline</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1415</td>
<td>1000</td>
<td>74.0</td>
<td>79.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1430</td>
<td>1000</td>
<td>72.0</td>
<td>78.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1445</td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>3</td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>74.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td>1000</td>
<td>70.0</td>
<td>83.2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>4</td>
<td>1000</td>
<td>70.0</td>
<td>83.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td>1000</td>
<td>69.0</td>
<td>85.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td>5</td>
<td>99.6</td>
<td>66.5</td>
<td>86.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>993</td>
<td>68.6</td>
<td>86.6</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td>6</td>
<td>993</td>
<td>68.6</td>
<td>86.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>998</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td>7</td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td>991</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**JANUARY 15, 1991**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping Rate (gpm)</th>
<th>Airline</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0100</td>
<td>8</td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td>991</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td>9</td>
<td>990</td>
<td>67.5</td>
<td>88.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td>993</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td>10</td>
<td>991</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td>991</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td>11</td>
<td>993</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td>993</td>
<td>67.0</td>
<td>88.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>12</td>
<td>986</td>
<td>67.0</td>
<td>88.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>1000</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Sheet No. 2 of 6 Sheets**
<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping Rate (gpm)</th>
<th>Airline Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond.</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY 15, 1991</td>
<td>13</td>
<td>995</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>998</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300</td>
<td>14</td>
<td>1003</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>1001</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td>1001</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>13</td>
<td>996</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td>16</td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>1003</td>
<td>70.0</td>
<td>83.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td>990</td>
<td>64.0</td>
<td>84.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td>996</td>
<td>69.0</td>
<td>85.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JANUARY 16, 1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0100</td>
<td>17</td>
<td>993</td>
<td>69.0</td>
<td>85.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td>993</td>
<td>68.5</td>
<td>86.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td>993</td>
<td>68.5</td>
<td>86.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td>18</td>
<td>995</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td>995</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td>995</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td>995</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>19</td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>985</td>
<td>68.5</td>
<td>86.1</td>
<td></td>
<td>74.0</td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>1000</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>990</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300</td>
<td>990</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date &amp; Time</td>
<td>Sample No.</td>
<td>Pumping Rate (gpm)</td>
<td>Airline</td>
<td>Drawdown (feet)</td>
<td>Chlorides (ppm)</td>
<td>Temp. (°F)</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>---------------------</td>
<td>---------</td>
<td>----------------</td>
<td>-----------------</td>
<td>-----------</td>
</tr>
<tr>
<td>JANUARY 16</td>
<td>16</td>
<td>990</td>
<td>68.0</td>
<td>67.8</td>
<td>87.8</td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>20</td>
<td>990</td>
<td>68.0</td>
<td>67.8</td>
<td>87.8</td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>990</td>
<td>68.0</td>
<td>67.8</td>
<td>87.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td>990</td>
<td>68.0</td>
<td>67.8</td>
<td>87.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>990</td>
<td>68.0</td>
<td>67.8</td>
<td>87.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td>21</td>
<td>990</td>
<td>67.5</td>
<td>67.5</td>
<td>88.9</td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td>998</td>
<td>67.5</td>
<td>67.5</td>
<td>88.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>998</td>
<td>67.5</td>
<td>67.5</td>
<td>88.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td>990</td>
<td>67.0</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>22</td>
<td>1001</td>
<td>66.5</td>
<td>91.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td>998</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td>996</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>JANUARY 17</td>
<td>17, 1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0100</td>
<td>1000</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td>23</td>
<td>998</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td>1001</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td>998</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td>1001</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td>24</td>
<td>998</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td>1000</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td>1003</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>1001</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>25</td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>1003</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td>996</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300</td>
<td>1000</td>
<td>66.0</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>26</td>
<td>996</td>
<td>65.5</td>
<td>93.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td>995</td>
<td>65.5</td>
<td>65.5</td>
<td>93.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td>996</td>
<td>65.5</td>
<td>65.5</td>
<td>93.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**PUMPING TEST RECORD**

**KALAOA EXPL.**  
**Well 4358-01**  

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping Rate (gpm)</th>
<th>Airline Pressure (PSI)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25° C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY 17, 1991</td>
<td></td>
<td>996</td>
<td>65.5</td>
<td>93.6</td>
<td>-</td>
<td>60 TO 00</td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>21</td>
<td>996</td>
<td>65.5</td>
<td>93.6</td>
<td>-</td>
<td>ROAD: 62 DB</td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td>1003</td>
<td>65.5</td>
<td>93.6</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>1001</td>
<td>65.5</td>
<td>93.6</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td>996</td>
<td>65.5</td>
<td>94.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>29</td>
<td>1005</td>
<td>65.0</td>
<td>94.7</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td>1001</td>
<td>65.0</td>
<td>94.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td>1000</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JANUARY 18, 1991</td>
<td></td>
<td>998</td>
<td>64.5</td>
<td>95.9</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0100</td>
<td>29</td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td>1006</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td>29</td>
<td>1001</td>
<td>64.8</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td>1005</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td>1000</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>1005</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>1000</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>1000</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**STOP PUMPING - RECOVERY**

**MEASURE READING**

<table>
<thead>
<tr>
<th>Elapsed Time</th>
<th>Meter Reading</th>
<th>Avg Q = 922 GPM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>148774000</td>
<td></td>
</tr>
<tr>
<td>Date &amp; Time</td>
<td>Sample No.</td>
<td>Pumping rate (gpm)</td>
</tr>
<tr>
<td>-------------</td>
<td>------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>JANUARY 18, 1991</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>10</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>15</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>20</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>(1200) 60</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>90</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>105</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>(1200) 120</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>150</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>(1400) 180</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>210</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>(1500) 240</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>270</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td>(1600) 300</td>
<td></td>
<td>0</td>
</tr>
</tbody>
</table>
Facsimile Transmittal

To: Ryan Inada / CWRM
Fax: 587 - 0219

From: Tiffany
Date: 11/14/02

Re: Kalapa Inpumel Repair
Pages: 3

CC:

□ Urgent  ☑ For Review  □ Please Comment  □ Please Respond

Notes: This is just to inform you that this was delivered to Clyde Young w/l/w.s. for signature, and should be mailed to your office.

Thank you,

Tiffany

Confidential

A Water Development Joint Venture
State of Hawaii  
COMMISSION ON WATER RESOURCE MANAGEMENT  
Department of Land and Natural Resources  
WELL COMPLETION REPORT - PART II  
Pump Installation  

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 808-587-0225. For updates to this form or additional information, please visit our website at http://www.state.hi.us/dlnr/owrm/ 

<table>
<thead>
<tr>
<th>1. State Well No.: 4358-01</th>
<th>Well Name: Kalaoa Deep Well</th>
<th>Island: Hawaii</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Address: 345 Kekuanaoa Street Ste. 20</td>
<td>Tax Map Key: 7-3-04:17</td>
<td></td>
</tr>
<tr>
<td>3. Pump Installation Company: Hilo, Hawaii Wai'eli Drilling &amp; Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Date Pump Installed: 10/30/02</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. PERMANENT PUMP INFORMATION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pump Type, Make, Serial No.: Sub., Reda S/N 2PB2E18915 Rated Capacity: 300 gpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Type, H.P., Voltage, rpm: Sub., 180hp, 2550 volt, 3500 RPM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Type of flow meter: clamp on which measures in gmp</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Method of flow measurement:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Flowmeter ManufacturerPanameticMake Ultrasonic Size</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Weir* □ Open Pipe* □ Orifice* □ Other*, explain below</td>
<td></td>
<td></td>
</tr>
<tr>
<td>*attach schematic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Fill in the as-built section on the other side of this sheet.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Other remarks/comments:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pump Installation Contractor (print) Wai'eli Drilling C-57/C-57a/A Lic. No. C-16543  
Signature  
Date 11/4/02  
Permittee (print)  
Signature  
Date  

WCR2 Form 5/2000
9. AS-BUILT PUMP SECTION (Please attach as-built if different from diagram provided below)

Bench mark elevation surveyed to nearest 0.01 ft. = 1799.2 ft. mean sea level

Elevation of top of chase tube = 1799.2 ft. mean sea level

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Bench mark elevation surveyed to nearest 0.01 ft.} = 1799.2 \text{ ft. mean sea level} \]

\[ \text{Elevation of top of chase tube} = 1799.2 \text{ ft. mean sea level} \]
Facsimile Transmittal

To: Ryan - Smola / CWRM  Fax: 587-0219
From: Tiffany  Date: 11/4/02
Re: Kalapana Deepwell Repair  Pages: 3

□ Urgent  ☑ For Review  □ Please Comment  □ Please Re

Notes: This is just to inform you that
was delivered to Clyde Young w/ SL.W.S.
for signature & then should be mailed
do your office.

Thank you,
Tiffany

Confidential
## State of Hawaii

**COMMISSION ON WATER RESOURCE MANAGEMENT**
Department of Land and Natural Resources

**WELL COMPLETION REPORT - PART II**

**Pump Installation**

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](http://www.state.hi.us/dlnr/cwrm/)

### 1. State Well No.: 4358-01
Well Name: Kalaoa Deep Well
Dept. of Water Supply

### 2. Address: 345 Kekuanaoa St., 20
Tax Map Key: 7-3-04:17

### 3. Pump Installation Company: Hilo, HI 96720
Wai'eli Drilling & Development

### 4. Date Pump Installed: 8/19/02

### 5. PERMANENT PUMP INFORMATION

<table>
<thead>
<tr>
<th>Pump Type, Make, Serial No.</th>
<th>Sub., Reda S/N 2PB2E18915</th>
<th>Rated Capacity: 300 gpm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motor Type, H.P., Voltage, rpm</td>
<td>Sub., 180hp, 2550 volt, 2500 RPM</td>
<td></td>
</tr>
</tbody>
</table>

Type of flow meter: Clamp on which measures in gpm

### 6. Method of flow measurement

- Flowmeter
- Manufacturer: Panometric
- Make: Ultrasonic
- Size

*attach schematic

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

### 8. Other remarks/comments:

* Project was not officially accepted by Dept. of Water Supply until 10/30/02.

---

**Pump Installation Contractor (print):** Wai'eli Drilling C-57/C-57a/A
Lic. No. C-16543

Signature

Date 11/4/02

---

**Permittee (print):**

Signature

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

Bench mark elevation surveyed to nearest 0.01 ft. = 1799.2 ft. mean sea level

Elevation of top of chase tube 1799.2 ft. mean sea level

1570.5 G.L. +228.75

θ 1720.10 G.L.
Pump intake depth = +79.15 ft. (referenced to bench mark)

θ 1704 G.L.
Chase tube depth = +95.25 ft. (referenced to bench mark)

If airline installed, bottom of airline elevation = _________ ft. mean sea level
According to TI original plan, a SLAPIC-, PIP for 500 GPM was issued to DL test @ 1000 GPM until 3-17-97 in 16 D.D. No VSCR-2 was turned in until 10-24-91. The latest VSCR-2 faxed by WACRL shows capacity of 300 GPM and was installed on 10-30-02. Also, wrong form
PART II. (PERMANENT) PUMP INSTALLATION REPORT

20. Pump Installation Company: Roscoe Moss Hawaii, Inc.
21. Name of person performing work: Clayton Igarashi
22. Date Pump Installation Completed: 10-24-91

23. PUMP INSTALLATION:
   Pump Type, Make, Serial No.: Turbine, Centrilift, 01H-64875  Capacity: 175 gpm
   Motor type, H.P., Voltage, rpm: Sub, 180, 2210, Various
   Depth of Pump Intake Setting 174.38 ft. below Sur Plate, which elevation is 1799 ft.
   Depth to bottom of airline 1730 ft. below Sur Plate, which elevation is 1799 ft.
   Pumping Head is 1850 ft. Type of flow meter: Turbine which measures in Gal

24. As-built drawings attached: Yes  No

25. Other remarks/comments: (See below)

Pump Installation Contractor (print) Roscoe Moss Hawaii, Inc. C-57 Lic. No. C-16437
Signature William C. Moore, Vice President Date 5/12/97

Applicant (print) MANAGER DWS C4
Signature Date 5/12/97

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

Water Level Depth (ft.) Rock Description, Remarks, Water Level Depth (ft.) Rock Description, Remarks,
Dates (ft.) Dates (ft.)
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______
____ to ______ to ______

FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages to:

Name: Steve Bowles
Company: WMS
From: Roy Hardy
Date: 3/13/92 Time: 3:20 pm

Message: Kalona Bump Test Results.
Also, DWS has a wide range case which "unofficially" has recorded a 50-80 drop since the Bump Test. Hualalai was site # Drilling permit not yet available.

Total number of pages (including Transmittal Page): 7

TRANSMISSION REPORT

THIS DOCUMENT (REDUCED SAMPLE ABOVE) WAS SENT

** COUNT **
# 7

*** SEND ***

<table>
<thead>
<tr>
<th>NO</th>
<th>REMOTE STATION I.D.</th>
<th>START TIME</th>
<th>DURATION</th>
<th>#PAGES</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>808 885 7851</td>
<td>3-13-92</td>
<td>3:22PM</td>
<td>5'24&quot;</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>808 885 7851</td>
<td>3-13-92</td>
<td>3:22PM</td>
<td>5'24&quot;</td>
<td>7</td>
</tr>
</tbody>
</table>

TOTAL 0:05'24" 7

XEROX TELECOPIER 7020
PUMP INSTALLATION PERMIT

for

Kalaoa Well A
Well No. 4358-01
Kalaoa, North Kona, Hawaii

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

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to install a pump in Kalaoa Well A (Well No. 4358-01) for municipal use is approved subject to the following conditions:

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

2. The permit shall be for installation of a 500 gpm capacity pump in the well.

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

4. The applicant shall provide and maintain an approved meter or other appropriate device or means for measuring and reporting total water usage. Water usage shall be measured on a monthly basis and reported to the Commission.
5. The following shall be submitted to the Commission staff within 30 days after completion of the work:
   a. Well Completion Report.
   b. As-built sectional drawing of the installed pump.

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

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

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

Applicant’s Signature: [Signature]
Date: 04/07/93

Printed Name: [Name]

Firm or Title: Dept of Water Supply

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

Enc. (Well Completion form)

C: USGS
Department of Health
   Safe Drinking Water Branch
   Ground Water Protection Program
FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages to:

Name:       Steve Bowles
Company:    WMS
From:       Roy Hardy
Date:       3/13/92       Time:  3:20 pm

Message:    Kalaoa Pump Test 1 Results.
            Also, DWS has a wide range gage which
            "unofficially" has recorded a 10-ft drop
            since the pump test. Hualalai Well
            site & drilling permit not yet available.

Total number of pages (including Transmittal Page):  7

* * * * * * * *

If you do not receive all of the pages legibly, please call back: (808) 587-0219

Sending Facsimile Number:  (808) 548-6052
Receiving Facsimile Number: (808) 585-7851
FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages to:

Name:  

Company:  

From:  Roy Hamby  

Date:  3/12/92  Time:  3:30 pm  

Message:  Kamana Pump Test I results  

Also, Dew's had a wide range cage which " unofficially " recorded a 10 - 5' drop since pump test. Havasu Well Site's drilling permit not yet available.

Total number of pages (including Transmittal Page):  7

* * * * * * * * * *

If you do not receive all of the pages legibly, please call back: (808) 537 - 0219  

Sending Facsimile Number: (808) 548 - 0432  

Receiving Facsimile Number:  

TRANSMISSION REPORT

THIS DOCUMENT (REDUCED SAMPLE ABOVE) WAS SENT

** COUNT **  
# 7

*** SEND ***

<table>
<thead>
<tr>
<th>NO</th>
<th>REMOTE STATION I.D.</th>
<th>START TIME</th>
<th>DURATION</th>
<th>#PAGES</th>
<th>COMMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>808 325 3403</td>
<td>3-13-92</td>
<td>3:29PM</td>
<td>4 '24&quot;</td>
<td></td>
</tr>
</tbody>
</table>

TOTAL  0:04'24"  7  

XEROX TELECOPIER 7020
FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages to:

Name: Carl Carlson
Company: Makalani
From: Roy Hardy
Date: 3/13/92 Time: 3:30 pm

Message:
Kalana Pump Test | Results
Also, DWS has a wide range gage which
"unofficially" recorded a 10-ft drop since
Pump Test. Hualalai Well Site's Drilling,
Permit not yet available.

Total number of pages (including Transmittal Page): 7

* * * * * * * *

If you do not receive all of the pages legibly, please call back: (808) 548-0219
Sending Facsimile Number: (808) 548-0032
Receiving Facsimile Number: (808) 325-3403
November 27, 1991

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

PUMP INSTALLATION PERMIT APPLICATION
NORTH KONA (KALAOA) WELL A
STATE WELL NO. 4358-01
NORTH KONA, HAWAII

Reference is made to Mr. Thomas Arizumi's letter to you dated October 10, 1991 on the above subject. We have submitted to Mr. Arizumi's office a copy of the Engineering Report for Kalaoa Well on November 25, 1991. We await acceptance of this report.

If any questions arises on the Engineering Report, please contact Mr. Dennis Lee of our staff.

H. William Seawake
Manager

DL

...Water brings progress...
TO: INITIAL: 

G. AKITA L. Nanbu

E. Sakoda G. Matsumoto E. Lau

L. Chang Y. Shiroma

M. TAGOMORI S. Kokubun

PLEASE: 

See Me
Take Action By
Route to Your Branch
Review & Comment
Draft Reply
Acknowledgment Receipt
Xerox copies
File
Mail

REMARKS:

FOR YOUR:

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

Dear Mr. Tagomori:

SUBJECT: PUMP INSTALLATION PERMIT APPLICATION
NORTH KONA (KALAOA) WELL A
STATE WELL NO. 4358-01
NORTH KONA, HAWAII

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

1) The application indicates that the subject well will be for municipal use. If the well is to serve 25 or more individuals at least 60 days per year or will have a minimum of 15 service connections, the applicant will be required to comply with 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. The report must adequately address all potential sources of contamination.

3) The operation of the well should not be allowed to adversely affect the water quality of nearby drinking water wells. The map accompanying the application indicates that the proposed well will be located within 2,000 feet of the Kalaa-Nansay (state well no. 4358-02) and the Ooma-Haseko (state well no. 4258-01) wells.
If you should have any questions, please contact the Safe Drinking Water Branch at 586-4258.

Sincerely,

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


c: H. William Sewake, Manager
   Department of Water Supply
   County of Hawaii
   25 Aupuni Street
   Hilo, Hawaii 96720
MEMORANDUM

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

FROM: Don Hibbard, Administrator State Historic Preservation Division

SUBJECT: Pump Installation, Kalaoa Well A (4358-01) -- County of Hawaii Department of Water Supply
Kalaoa, North Kona, Hawaii
TMK: 7-3-4: 17

This appears to be a well project that we have previously reviewed and found to have “no effect” on significant historic sites. If this is not the case, then the County of Hawaii's Department of Water Supply must consult with our office in compliance with Chapter 6E, H.R.S., as this is a county undertaking.
<table>
<thead>
<tr>
<th>TO:</th>
<th>INITIAL:</th>
<th>PLEASE:</th>
<th>REMARKS:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E. SAKODA</td>
<td>See Me</td>
<td></td>
</tr>
<tr>
<td></td>
<td>F. Ching</td>
<td>Call</td>
<td></td>
</tr>
<tr>
<td></td>
<td>W. Rozeboom</td>
<td>Review &amp; Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P. Haraguchi</td>
<td>Take Action</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G. Bauer</td>
<td>Investigate &amp; Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N. Fujii</td>
<td>Draft Reply</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A. Okamura</td>
<td>Acknowledge Receipt</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B. Micua</td>
<td>Type Draft</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type Final cc:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Xerox copies</td>
<td></td>
</tr>
</tbody>
</table>

FOR YOUR:

<table>
<thead>
<tr>
<th></th>
<th>G. AKITA</th>
<th>Approval</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L. Nanbu</td>
<td>Signature</td>
</tr>
<tr>
<td></td>
<td>G. MATSUMOTO</td>
<td>Information</td>
</tr>
<tr>
<td></td>
<td>E. LAU</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L. CHANG</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Y. SHIROMA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>M. TAGOMORI</td>
<td></td>
</tr>
<tr>
<td></td>
<td>S. Kokubun</td>
<td></td>
</tr>
</tbody>
</table>
October 1, 1991

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

KALAOA EXPLORATORY WELL "A" (4358-01)

We are experiencing low water and occasional no water conditions for our water consumers in the Kalaoa-Kaloko water service area. This is due to increased water consumption accounting for rapid depletion of the storage reservoirs. Further the capacity of our existing booster pump system is unable to maintain adequate storage levels during peak hour use.

Under emergency provisions authorized by our Water Commission, we are taking actions to activate the Kalaoa Well. We have purchased and scheduled the installation of a temporary electrical submersible pumping unit for that well. This pumping unit is rated at 335 gpm. Because permanent electrical power is not yet available, we will rent a portable electrical generator.

This is to inform the Commission on Water Resource Management of our need to activate this well and that the targeted date to have this well on line is October 4, 1991. For your information, we are enclosing a copy of our Water Restriction Notice which was issued September 19, 1991.

H. William Sewake
Manager

GK/GT

Enc.

...Water brings progress...
WATER RESTRICTION NOTICE

ATTENTION: ALL WATER CUSTOMERS OF THE DEPARTMENT OF WATER SUPPLY ALONG THE
PALANI ROAD (FROM QUEEN LILIUOKALANI VILLAGE, KEALAKEHE, AND ABOVE)
AND THE KALOKO-KALAOA AREAS IN THE NORTH KONA DISTRICT

Due to the continuing dry weather, increased water consumption has placed undue
strain on the Department's Water System facilities. Emergency measures have been
initiated to alleviate the situation.

A spigot has been installed on a fire hydrant on Mahilani Drive before Kilapa
Street within the Kona Highlands Subdivision. Also, a water tanker will be
provided in the Kalaoa-Kona area along the Mamalahoa Highway. Water from the
spigot and tanker shall be strictly used for drinking and cooking purposes only.

It may become necessary to shut-off certain areas in order to replenish water to
the Department's storage facilities. Customers may experience "no water" during
these periods.

EFFECTIVE IMMEDIATELY, the following water uses shall absolutely not be allowed:

1. IRRIGATION (Agricultural and landscape)
2. WASHING OF VEHICLES AND BOATS
3. LAWN SPRINKLING
4. DUST CONTROL

Full cooperation of all consumers to comply with this restriction notice is
appreciated. Failure to comply will be cause for an individual's water service to
be shut off and meter removed in accordance with the Rules and Regulations of the
Department of Water Supply.

Department of Water Supply
County of Hawaii

Hawaii Tribune Herald
September 25 and 27, 1991

West Hawaii Today
September 25 and 27, 1991

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

**FROM:**

**DATE:**

**FILE IN:**

<table>
<thead>
<tr>
<th>TO</th>
<th>INITIAL</th>
<th>PLEASE</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>G. AKITA</td>
<td>See Me</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L. Nanbu</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>E. Sakoda</td>
<td>Take Action By</td>
<td></td>
</tr>
<tr>
<td></td>
<td>G. Matsumoto</td>
<td>Route to Your Branch</td>
<td></td>
</tr>
<tr>
<td></td>
<td>E. Lau</td>
<td>Review &amp; Comment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>L. Chang</td>
<td>Draft Reply</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Y. Shiroma</td>
<td>Acknowledge Receipt</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Xerox ___ copies</td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td>Neal</td>
<td>File</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mail</td>
<td></td>
</tr>
</tbody>
</table>

**FOR YOUR:**

- Approval
- Signature
- Information

- M. TAGOMORI
- S. Kokubun
October 3, 1991

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

SUBJECT:  WELL CONSTRUCTION PERMIT APPLICATION
Kalaoa Well A
Well No. 4358-01
TMK:  7-3-04: 17

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

ROBERT K. YANABU, Division Chief
Engineering Division

GR:byf
OCT 3 1991

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:

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kauai</td>
<td>Puhi Well 4</td>
<td>5824-06</td>
<td>Well Construction</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Kalaoa Well A</td>
<td>4358-01</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, 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. H. William Sewake  
Manager & Chief Engineer  
Department of Water Supply  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii  96720

Dear Mr. Sewake:

We have received your application for a permit to install a pump in a well (Well No. 4358-01) at Kalaoa, Hawaii, (TMK 7-3-04:17). We are reviewing the application for completeness.

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

Sincerely,

[Signature]

MANABU TAGOMORI  
Deputy Director
Mr. Bruce C. McClure  
Chief Engineer  
Department of Public Works  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720  

Dear Mr. McClure:  

Pump Installation Permit Application  

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

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawaii</td>
<td>Kalaoa Well A</td>
<td>4358-01</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

Please review the application 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.
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:

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kauai</td>
<td>Puhi Well 4</td>
<td>5824-06</td>
<td>Well Construction</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Kalaoa Well A</td>
<td>4358-01</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

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

Sincerely,

MANABU TAGOMORI  
Deputy Director

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

Attn: Mr. William Wong

Dear Mr. Arizumi:

Well Construction and Pump Installation Permit Applications

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

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kauai</td>
<td>Puhi Well 4</td>
<td>5824-06</td>
<td>Well Construction</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Kalaoa Well A</td>
<td>4358-01</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, ten (10) working days from date of this letter.

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

Sincerely,

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:

<table>
<thead>
<tr>
<th>Island</th>
<th>Well Name</th>
<th>Well No.</th>
<th>Application Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kauai</td>
<td>Puhi Well 4</td>
<td>5824-06</td>
<td>Well Construction</td>
</tr>
<tr>
<td>Hawaii</td>
<td>Kalaoa Well A</td>
<td>4358-01</td>
<td>Pump Installation</td>
</tr>
</tbody>
</table>

Please review the application(s) pursuant to your area of concern and submit your comments to us, orally or in writing, 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.
DIVISION OF WATER RESOURCE MANAGEMENT

FROM: [Signature]

DATE: [Date]

FILE IN: [File Number]

TO: [Signature]

INITIAL: [Initial]

PLEASE:

- See Me
- Take Action By
- Route to Your Branch
- Review & Comment
- Draft Reply
- Acknowledge Receipt
- Xerox copies
- File
- Mail

REMARKS: [Handwritten Remarks]

FOR YOUR:

- Approval
- Signature
- Information

[Handwritten Date and Signature]
September 9, 1991

Mr. Kazuo G. Akita
Manager-Chief Engineer
Division of Water Resource Management
Department of Land and Natural Resources
State of Hawaii
P. O. Box 373
Honolulu, HI 96809

JOB NO. 8-HW-H, KALAOA WELL "A" (WELL NO. 4358-01)
NORTH KONA, HAWAII, APPLICATION FOR WELL CONSTRUCTION

As you requested, we signed the Application for Well Construction permit and are returning it to you.

We also signed as the landowner since the property is under executive order to us.

On Item No. 6, shouldn't the withdrawal be 720,000 gallons a day?

H. William Sewahe
Manager

Enc.
APPLICATION FOR

X PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 313, Honolulu, Hawaii 96806. 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 548-7543. Hydrology/Geology Section for assistance.

KALAOA A

1. WELL LOCATION
North Kona (Kalaoa) Well A (No. 4358-01)
Island Hawaii
Tax Map Key 7-3-04:17
Address

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

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

LANDOWNER
County of Hawaii
Firm Name Dept. of Water Supply
Contact Person H. William Sewake
Address 25 Aupuni Street
Hilo, Hawaii 96720
Phone 969-1421

3. PROPOSED CONTRACTOR FOR:
   [ ] Well Drilling  [ ] Pump Installation
   Name: To be determined
   Phone
   Address
   Contractor's License No.

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

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

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

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

7. PROPOSED PUMP INFORMATION
   Pump Type: [ ] Vertical Turbine
   Motor: [ ] Diesel  [ ] Gas
   [ ] Submersible  [ ] Centrifugal
   [ ] Electric
   Rated Pump Capacity 500 gallons per minute (gpm)

Well Owner (print) County of Hawaii
Signature  ___________________________  Date  9-1-98

Landowner (print) County of Hawaii
Signature  ___________________________  Date  9-1-98

For Official Use Only:
Field Checked By ___________________________  Date
Latitude ___________________________  Hydrologic Unit
Longitude ___________________________  State Well No. 4358-01
Quad Map No. H-7
Briefly describe the proposed work:

A submersible, variable speed deep well pump with a capacity of up to 500 gallons per minute (gpm) will be installed. The associated electrical and mechanical equipment will be housed in a proposed control building at the well site.

PROPOSED SECTION OF WELL

Elevation at top of casing 1801' ft., msl.

Cement Grout 1528 ft.

Hole Dia. 21 in.

Total Depth 1850 ft.

Rock Packing 0 ft.

Ground Elev. 1799' ft., msl*

Solid Casing:
- Material Steel
- Length 1730 ft.
- Diameter 14 in.
- Wall thickness 0.375 in.

Casing: / Perforated / Screen
- Material Steel
- Length 120 ft.
- Diameter 14 in.
- Wall thickness 0.375 in.
- Openings 80 sq. in./L.F.

Open Hole:
- Length 50 feet
- Diameter 13 in.

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

WELL CONSTRUCTION PERMIT  
PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96820. 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 586-7543, Hydrology/Groundwater Section for assistance.

KALAOA A

1. WELL LOCATION  North Kona (Kalaoa) Well A (No. 4358-01)
   Island Hawaii       Tax Map Key  7-3-04:17
   Address
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER  LANDOWNER
   County of Hawaii   County of Hawaii
   Firm Name Dept. of Water Supply Firm Name Dept. of Water Supply
   Contact Person H. William Sewake Contact Person H. William Sewake
   Address 25 Aupuni Street
   Hilo, Hawaii 96720
   Phone 969-1421

3. PROPOSED CONTRACTOR FOR:  ☑ Well Drilling  ☑ Pump Installation
   Name To be determined
   Address
   Phone
   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  720,000 gallons per day

7. PROPOSED PUMP INFORMATION
   Pump Type:  ☑ Vertical Turbine  ☑ Submersible  ☑ Centrifugal
   Motor:  ☑ Diesel  ☑ Gas  ☑ Electric: 
   Rated Pump Capacity 500 gallons per minute (gpm)

Well Owner (print) County of Hawaii  Landowner (print) County of Hawaii
Signature ___________________________  Signature ___________________________
Date 9/1/91  Date 9/1/91

For Official Use Only:
Field Checked By ___________________________  Latitude ___________________________
Date ___________________________  Hydrologic Unit ___________________________
State Well No. 4358-01  Quad Map No. H-7
Briefly describe the proposed work:

A submersible, variable speed deep well pump with a capacity of up to 500 gallons per minute (gpm) will be installed. The associated electrical and mechanical equipment will be housed in a proposed control building at the well site.

**PROPOSED SECTION OF WELL**

- **Elevation at top of casing**: 1801 ft., msl
- **Cement Grout**: 1528 ft.
- **Hole Dia.**: 21 in.
- **Total Depth**: 1850 ft.
- **Rock Packing**: 0 ft.
- **Ground Elev.**: 1799 ft., msl

**Solid Casing:**
- Material: Steel
- Length: 1730 ft.
- Diameter: 14 in.
- Wall thickness: 0.375 in.

**Casing:**
- Material: Steel
- Length: 120 ft.
- Diameter: 14 in.
- Wall thickness: 0.375 in.
- Openings: 80 sq. in./L.F.

**Open Hole:**
- Length: 50 feet
- Diameter: 13 in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.*
TO: State of Hawaii  
Department of Land and Natural Resources  
Division of Water Resources Management  
P. O. Box 373  
Honolulu, Hawaii 96809

GENTLEMEN:

WE ARE SENDING YOU:  
☐ Attached  ☐ Under separate cover via ____________________ the following items:

☐ Shop drawings  ☐ Prints  ☐ Plans  ☐ Samples  ☐ Specifications
☐ Copy of letter  ☐ Change order

<table>
<thead>
<tr>
<th>COPIES</th>
<th>DATE</th>
<th>NO.</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Feb. 1991</td>
<td></td>
<td>Video cassette tape covering the Kalaoa Water Well Video Logging</td>
</tr>
</tbody>
</table>

THESE ARE TRANSMITTED as checked below:

☐ For approval  ☐ Approved as submitted  ☐ Resubmit ___ copies for approval
☐ For your use  ☐ Approved as noted  ☐ Submit ___ copies for distribution
☑ As requested  ☐ Returned for corrections  ☐ Return ___ corrected prints
☐ For review and comment  ☐ ____________________ 19  ☐ PRINTS RETURNED AFTER LOAN TO US

REMARKS
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________

COPY TO ____________________________________________  
SIGNED ____________________________________________

IF enclosures are not as noted, kindly notify us.
Water Resources Division, National Laboratory, Arvada, Colorado

SITE ID: 194315155584101    LAB ID NO.: 0359040   PROJECT: 471500200
STATION NAME: KALAOA EXPLORATORY WELL, 8-4358-01, KONA, HAWAII
BEGIN DATE: 01-18-1991 AT 1000   END DATE: - -   AT   COUNTY: 001
SAMPLE COST: $378.22   SCHEDULES USED: 1024197

PRELIMINARY DATA

SUBJECT TO REVISIONS

<table>
<thead>
<tr>
<th>CODE</th>
<th>PARAMETER NAME</th>
<th>UNITS</th>
<th>VALUE</th>
<th>R</th>
<th>M</th>
<th>S</th>
<th>E</th>
<th>Q</th>
<th>E</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>00900</td>
<td>HARDNESS TOTAL</td>
<td>(MG/L AS CAO3)</td>
<td>64</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00915</td>
<td>CALCIUM DISSOLVED</td>
<td>(MG/L AS CA)</td>
<td>9.8</td>
<td>H</td>
<td>D</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00925</td>
<td>MAGNESIUM DISSOLVED</td>
<td>(MG/L AS MG)</td>
<td>9.5</td>
<td>H</td>
<td>C</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00930</td>
<td>SODIUM DISSOLVED</td>
<td>(MG/L AS NA)</td>
<td>30</td>
<td>H</td>
<td>C</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00931</td>
<td>SODIUM ADSORPTION R.</td>
<td>(RATIO)</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00932</td>
<td>SODIUM, PERCENT</td>
<td>PERCENT</td>
<td>49</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00935</td>
<td>POTASSIUM DISSOLVED</td>
<td>(MG/L AS K)</td>
<td>5.3</td>
<td>H</td>
<td>B</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00940</td>
<td>CHLORIDE DISSOLVED</td>
<td>(MG/L AS CL)</td>
<td>11</td>
<td>H</td>
<td>J</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00945</td>
<td>SULFATE DISSOLVED</td>
<td>(MG/L AS SO4)</td>
<td>31</td>
<td>H</td>
<td>G</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00950</td>
<td>FLUORIDE DISSOLVED</td>
<td>(MG/L AS F)</td>
<td>0.40</td>
<td>H</td>
<td>E</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>00955</td>
<td>SILICA DISSOLVED</td>
<td>(MG/L AS SiO2)</td>
<td>53</td>
<td>H</td>
<td>C</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01002</td>
<td>ARSENIC TOTAL</td>
<td>(UG/L AS AS)</td>
<td>&lt; 1</td>
<td>1</td>
<td>H</td>
<td>B</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01007</td>
<td>BARIUM TOTAL</td>
<td>(UG/L AS BA)</td>
<td>&lt; 100</td>
<td>1</td>
<td>H</td>
<td>A</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01012</td>
<td>BERYLLIUM TOTAL</td>
<td>(UG/L AS BE)</td>
<td>&lt; 10</td>
<td>1</td>
<td>H</td>
<td>A</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01027</td>
<td>CADMIUM TOTAL</td>
<td>(UG/L AS CD)</td>
<td>&lt; 1</td>
<td>1</td>
<td>H</td>
<td>F</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01034</td>
<td>CHROMIUM TOTAL</td>
<td>(UG/L AS CR)</td>
<td>3</td>
<td>H</td>
<td>D</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01037</td>
<td>COBALT TOTAL</td>
<td>(UG/L AS CO)</td>
<td>1</td>
<td>H</td>
<td>F</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01042</td>
<td>COPPER TOTAL</td>
<td>(UG/L AS CU)</td>
<td>2</td>
<td>H</td>
<td>F</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01045</td>
<td>IRON TOTAL</td>
<td>(UG/L AS FE)</td>
<td>&lt; 10</td>
<td>1</td>
<td>H</td>
<td>B</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01046</td>
<td>IRON DISSOLVED</td>
<td>(UG/L AS FE)</td>
<td>&lt; 3</td>
<td>1</td>
<td>H</td>
<td>D</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01051</td>
<td>LEAD TOTAL</td>
<td>(UG/L AS PB)</td>
<td>&lt; 1</td>
<td>1</td>
<td>H</td>
<td>F</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01055</td>
<td>MANGANESE TOTAL</td>
<td>(UG/L AS MN)</td>
<td>&lt; 10</td>
<td>1</td>
<td>H</td>
<td>A</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01056</td>
<td>MANGANESE DISSOLVED</td>
<td>(UG/L AS MN)</td>
<td>&lt; 1</td>
<td>1</td>
<td>H</td>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01062</td>
<td>MOLYBDENUM TOTAL</td>
<td>(UG/L AS MO)</td>
<td>3</td>
<td>H</td>
<td>A</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01067</td>
<td>NICKEL TOTAL</td>
<td>(UG/L AS NI)</td>
<td>&lt; 1</td>
<td>1</td>
<td>H</td>
<td>F</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01077</td>
<td>SILVER TOTAL</td>
<td>(UG/L AS AG)</td>
<td>&lt; 1</td>
<td>1</td>
<td>H</td>
<td>F</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01092</td>
<td>ZINC TOTAL</td>
<td>(UG/L AS ZN)</td>
<td>&lt; 10</td>
<td>1</td>
<td>H</td>
<td>A</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01105</td>
<td>ALUMINUM TOTAL</td>
<td>UG/L AS AL</td>
<td>&lt; 10</td>
<td>1</td>
<td>H</td>
<td>C</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01132</td>
<td>LITHIUM TOTAL</td>
<td>UG/L AS LI</td>
<td>&lt; 10</td>
<td>1</td>
<td>H</td>
<td>A</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>01147</td>
<td>SELENIUM TOTAL</td>
<td>UG/L AS SE</td>
<td>&lt; 1</td>
<td>1</td>
<td>H</td>
<td>A</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>70301</td>
<td>DISSOLVED SOLIDS SUM</td>
<td>MG/L</td>
<td>205</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>71900</td>
<td>MERCURY, TOT.REC.</td>
<td>UG/L AS HG</td>
<td>&lt; 0.10</td>
<td>1</td>
<td>H</td>
<td>B</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90095</td>
<td>SPECIFIC CONDUCTANCE</td>
<td>MICROSIEMENS/CM</td>
<td>270</td>
<td>H</td>
<td>A</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>90410</td>
<td>ALKALINITY</td>
<td>MG/L AS CACO3</td>
<td>92</td>
<td>H</td>
<td>A</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CATIONS**

<table>
<thead>
<tr>
<th></th>
<th>(MG/L)</th>
<th>(MEQ/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALCIUM, DISS.</td>
<td>9.801</td>
<td>0.490</td>
</tr>
<tr>
<td>MAGNESIUM, DISS.</td>
<td>9.500</td>
<td>0.782</td>
</tr>
<tr>
<td>SODIUM, DISS.</td>
<td>30.000</td>
<td>1.306</td>
</tr>
<tr>
<td>POTASSIUM, DISS.</td>
<td>5.300</td>
<td>0.136</td>
</tr>
</tbody>
</table>

**ANIONS**

<table>
<thead>
<tr>
<th></th>
<th>(MG/L)</th>
<th>(MEQ/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLORIDE, DISS.</td>
<td>11.000</td>
<td>0.311</td>
</tr>
<tr>
<td>SULFATE, DISS.</td>
<td>31.000</td>
<td>0.646</td>
</tr>
<tr>
<td>FLUORIDE, DISS.</td>
<td>0.400</td>
<td>0.022</td>
</tr>
<tr>
<td>ALKALINITY, FET, LAB</td>
<td>92.000</td>
<td>1.839</td>
</tr>
</tbody>
</table>

**TOTAL**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>CATIONS</td>
<td>2.712</td>
<td></td>
</tr>
<tr>
<td>ANIONS</td>
<td>2.815</td>
<td></td>
</tr>
</tbody>
</table>

PERCENT DIFFERENCE = -1.87
KALAOA EXPL. WELL 4358-01

AS-BUILT SECTION

Driller: Water Resources International
Drilled: Nov. 1990

FT. MSL - TOP OF CASING
1799 FT. MSL - FINISH GRADE

NIPPLE

1850 Feet
TOTAL DEPTH DRILLED HOLE, 21 DIAMETER

1730 Feet
SOLID CASING 14 I.D. x .375 WALL

1528 ft.
CEMENT GROUT

Rock Seal 6 ft. Cement Basket at 1534 ft.

237.9 FT. ABOVE MSL
STATIC WATER LEVEL
on 1-14-91 (Airline)

- 51 FT. MSL
BOTTOM OF WELL

NOT TO SCALE

JOB. 8-HW-C
KALAOA EXPL. WELL 4358-01

AS-BUILT SECTION

Driller: Water Resources International
Drilled: Nov. 1990

NIPPLE

FT. MSL - TOP OF CASING
1799
FT. MSL - FINISH GRADE

1850 Feet
TOTAL DEPTH DRILLED HOLE, 21 DIAMETER

1730 Feet
SOLID CASING 14 I.D. X 375 WALL

1528 ft.
CEMENT GROUT

Rock Seal 6 ft.
Cement Basket at 1534 ft.

120 Feet
FULL-FLO SHUTTER SCREEN
14 I.D. X 375 WALL

237.9 FT. ABOVE MSL
STATIC WATER LEVEL
on 1-14-91 (Airline)

- 51 FT. MSL
BOTTOM OF WELL

NOT TO SCALE
Mr. Manabu Tagomori  
Deputy for Water Resource Management  
Division of Water Resource Management  
State of Hawaii  
P.O. Box 373  
Honolulu, Hawaii 96809

Dear Mr. Tagomori: 

Enclosed are the results of our analysis of water samples collected on January 18, 1991, from the Kalaoa Exploratory well, 8-4358-01, Island of Hawaii, State of Hawaii. This information is provisional and is subject to revision.

The data will be stored in our National Water Information System, a distributed water data base in which data can be processed over a network of minicomputers at U.S. Geological Survey offices throughout the United States.

Please call us if you have any questions.

Sincerely, 

[Signature]

William Meyer  
District Chief

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

Dear Mr. Sewake:

Kalaoa Well No. 4358-01 Pump Test  
Results and Recommended Source Development

Enclosed for your information and files are results from the recent Kalaoa Well (Well No. 4358-01) pump test. As the test data show, although the well was pumped at a rate of 1000 gpm for 93 hours of the 96-hour test, drawdown in the well did not stabilize. The extent and capability of this high-level confined aquifer to sustain a reliable supply for the County is unknown and must be evaluated from a conservative point of view.

Our staff recommends that the source operates with a sustainable capacity of 0.5 mgd, and that a 350 gpm submersible pump (to avoid noise complaints) be installed to a depth of 1825 feet (elevation -26 feet msl) to allow for slow dewatering of the aquifer over time. We can reevaluate the Kalaoa Well sustainable capacity at a later time after long-term operation can establish aquifer parameters.

If you have any question, please contact Ed Sadoka at 548-7643.

Sincerely,

MANABU TAGOMORI  
Deputy Director

ES:bm  
Enc.
### WELL COMPLETION REPORT

**INSTRUCTIONS:** Please print or type and submit completed report within 30 days of well completion to the Division of Water & Land Development, P.O. Box 373, Honolulu, HI 96809. A check-listed drawing of the well and chemical analysis, if available, should also be submitted. If necessary, phone 548-1543, Hydrology, Geology Section for assistance.

<table>
<thead>
<tr>
<th><strong>A. STATE WELL NO.</strong></th>
<th>4358-01</th>
<th><strong>WELL NAME</strong></th>
<th>Kalaaoa Expl. Well A</th>
<th><strong>ISLAND</strong></th>
<th>Hawaii</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>B. LOCATION</strong></td>
<td>Kalaaoa, North Kona</td>
<td><strong>TAX MAP KEY</strong></td>
<td>7-3-0475</td>
<td><strong>STATE WELL NO.</strong></td>
<td>Box 313, Honolulu, HI 96809</td>
</tr>
<tr>
<td><strong>C. WELL OWNER</strong></td>
<td>State of Hawaii</td>
<td><strong>DATE OF WELL COMPLETION</strong></td>
<td>2/21/90</td>
<td><strong>DATE OF PUMP INSTALLATION</strong></td>
<td>na</td>
</tr>
<tr>
<td><strong>D. DRILLING OR PUMP INSTALLATION CONTRACTOR</strong></td>
<td>Water Resources International, Inc.</td>
<td><strong>DRILLER</strong></td>
<td>Spencer-Harris Rotary</td>
<td><strong>AHUNA</strong></td>
<td></td>
</tr>
<tr>
<td><strong>E. TYPE OF RIG</strong></td>
<td></td>
<td><strong>GROUND ELEVATION (fsl)</strong></td>
<td>1799.26 ft.</td>
<td><strong>TOP OF DRILLING PLATFORM (fsl)</strong></td>
<td>1514 ft.</td>
</tr>
<tr>
<td><strong>F. DEPTH</strong></td>
<td>Depth of bottom of intake setting ft. below ground</td>
<td><strong>G. TOTAL DEPTH OF WELL BELOW GROUND</strong></td>
<td>1850 ft.</td>
<td><strong>H. HOLE SIZE</strong></td>
<td>21 inch dia. from 0 ft. to 1850 ft. below ground</td>
</tr>
<tr>
<td><strong>G. HOLE SIZE</strong></td>
<td>Capacity gpm</td>
<td><strong>J. CASING INSTALLED</strong></td>
<td>14 in. I.D. x 3/8 in. steel solid to 1730 ft. below ground</td>
<td><strong>K. ANNULUS</strong></td>
<td>Grouted from 0 ft. to 1514 ft. below ground</td>
</tr>
<tr>
<td><strong>H. TOTAL DEPTH OF WELL BELOW GROUND</strong></td>
<td>Date and time of measurement</td>
<td>9-18-90</td>
<td><strong>L. PERMANENT PUMP INSTALLATION</strong></td>
<td>Pump type, make, serial no.</td>
<td>Capacity gpm</td>
</tr>
<tr>
<td><strong>I. PROPOSED USE</strong></td>
<td>Municipal</td>
<td><strong>M. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>N. INITIAL WATER LEVEL</strong></td>
<td>1544 ft. below ground</td>
</tr>
<tr>
<td><strong>J. CASING INSTALLED</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>O. INITIAL CHLORIDE</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>P. PUMPING TESTS</strong></td>
<td>Reference point (R.P.) used</td>
</tr>
<tr>
<td><strong>K. ANNULUS</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>0 ft. to 135 ft.</td>
</tr>
<tr>
<td><strong>L. PERMANENT PUMP INSTALLATION</strong></td>
<td>Capacity gpm</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>WATER LEVEL</strong></td>
<td>0 ft. to 135 ft.</td>
</tr>
<tr>
<td><strong>M. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>Depth ft.</td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>0 ft. to 135 ft.</td>
</tr>
<tr>
<td><strong>N. INITIAL WATER LEVEL</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>135 ft. to 215 ft.</td>
</tr>
<tr>
<td><strong>O. INITIAL CHLORIDE</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>215 ft. to 275 ft.</td>
</tr>
<tr>
<td><strong>P. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>275 ft. to 338 ft.</td>
</tr>
<tr>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>338 ft. to 430 ft.</td>
</tr>
<tr>
<td><strong>R. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>430 ft. to 511 ft.</td>
</tr>
<tr>
<td><strong>S. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>511 ft. to 570 ft.</td>
</tr>
<tr>
<td><strong>T. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>570 ft. to 601 ft.</td>
</tr>
<tr>
<td><strong>U. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>601 ft. to 630 ft.</td>
</tr>
<tr>
<td><strong>V. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>630 ft. to 660 ft.</td>
</tr>
<tr>
<td><strong>W. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>660 ft. to 700 ft.</td>
</tr>
<tr>
<td><strong>X. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>700 ft. to 775 ft.</td>
</tr>
<tr>
<td><strong>Y. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>775 ft. to 820 ft.</td>
</tr>
<tr>
<td><strong>Z. PUMPING TESTS</strong></td>
<td>Date &amp; time of sampling</td>
<td><strong>WATER LEVEL</strong></td>
<td></td>
<td><strong>Q. DRILLER’S LOG</strong></td>
<td>820 ft. to 840 ft.</td>
</tr>
</tbody>
</table>

**REMARKS:**

Submitted by (print) Kathy Watanabe

Title Secretary

Signature March 30, 1991
January 30, 1991

MEMORANDUM FOR THE RECORD

FROM: Mitchell Ohye

SUBJECT: Kalaoa Exploratory Well 4358-01, Kona, Pumping Test
Noise Complaint

A pumping test was conducted on the subject well beginning on January 14, 1991 at 10:45 a.m. After initial drawdown data and water samples were collected, I started monitoring noise created by the diesel engines using a decibel meter. Readings were taken and recorded at the entrance of tank site (70 dBA) and approximately 120 ft. makai of job site along access road closest to the resident affected (62 dBA). Decibel readings are within acceptable limits set by the Department of Health Noise Standards (Section 11-432-3). Allowable noise levels in dBA at the property line. See attached.

At 8:45 p.m., Patrol Officer Ronald Paul visited the job site to inform us that a noise complaint had been filed. I asked him if this was an order to stop testing. His response was that they have no authority to shut us down and his duty was just to notify us that a complaint was filed. (Mrs. Polly Ann Tom filed noise complaint)

Attached is a summary of events covering the 96-hour continuous pumping test.
Mr. William Meyer  
District Chief  
U.S. Geological Survey  
Water Resources Division  
677 Ala Moana Blvd., Suite 415  
Honolulu, Hawaii 96813  

Attention: Mr. John Yee  

Dear Mr. Meyer:  

Water Sample, Kalaoa Exploratory Well 4358-01, Kona  

Transmitted under separate cover to Mr. John Yee of your office is a one-gallon water sample taken on January 18, 1991 from the Kalaoa Exploratory Well  

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

Sincerely,  

[Signature]  

KAZUO G. AKITA  
Manager-Chief Engineer  

MO:ko
**MEMO**

**TO**  RECOD  |  1/28/91  |  DIVISION  
**FROM**  MITCHELL OAYS  |  DOWALD  |  DATE 
**SUBJECT**  KANOA EXPL. WELL 4356-01. YOJA "PLUMBNESS AND ALIGNMENT"  
**MESSAGE:**

On January 29, 1991 a plumbness and alignment test was conducted on the subject well. A 12 rib wire directional cage and 40' long dummy were used for testing. Total testing time was 5 hours. Data shows well to be within specifications.  
40' dummy moved throughout entire length of casing with no hang ups.
KALAOA EXPL. WELL 4358-01, KONA

Plumbness and Alignment
Jan. 29, 1991

Total Depth = 1850 ft.
Casing Depth = 1550 ft.
Casing Dia. = 14 in.

INTERNALS

14 inches

Direction towards "Y" from center

Allowable Deviation Per 100'

1'
14'
21'

Date: Jan. 28, 1991

Well Name: Kalaoa Expl.
Well No.: 4358-01
Total Depth: 1850 ft.
Casing Dia.: 14 in.
Sol. Cas.: 1730 ft.
Perf. Cas.: 1850 ft.

Dummy 40 ft., 13 13/16 in. Dia.
Cage 3 ft., 13 1/4 in. Dia.
Suspension Pt. 42.5' above T.O.C
Personnel
Weather Sunny, calm, clear

49.6'
84.4'
126°
**PUMPING TEST RECORD**

**for**

**KALUA EXP.**

*Hawaiian Island Project or Job No. 19*

**Description of Well**

1. Elevation: ground surface 1799 ft., top of casing ___ ft., rotary table ___ ft., referenced to benchmark.
2. Total depth of well 1150 ft.; or ___ ft. elevation, msl
3. ___ in. solid casing to 1750 ft. depth, perforated to ___ ft. depth
4. Static water level on Jan. 14, 1991: ___ ft. below ground surface, top of casing; or __51.9 ft. elevation msl measured ___ method

**Description of Pump and Pump Setting**

5. ___ type pump with ___ stage bowl assembly
6. Gasoline diesel, electric, power with ___ horsepower
7. Shaft speed: ___ rpm at 1000 gpm flow
8. Depth of pump intake: ___ ft. below gr.; or ___ ft. elev. msl
9. Depth of airline bottom: ___ ft. below gr.; or ___ ft. elev. msl
10. Center of gage: ___ ft. elev., msl. Flow measured with ***FLOWMETER***
11. Test conducted by ___

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline pressure (PSI)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY 14, 1991</td>
<td>1020</td>
<td>0</td>
<td>106.0</td>
<td>85.0</td>
<td>53.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1030</td>
<td>0</td>
<td>106.0</td>
<td>85.0</td>
<td>53.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1045</td>
<td>0</td>
<td>106.0</td>
<td>85.0</td>
<td>53.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>START PUMPING - ADJUST TO 500 GPM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1050</td>
<td>500</td>
<td>87.0</td>
<td>53.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1065</td>
<td>500</td>
<td>87.0</td>
<td>53.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1100</td>
<td>500</td>
<td>87.0</td>
<td>43.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1120</td>
<td>500</td>
<td>86.0</td>
<td>43.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1145</td>
<td>500</td>
<td>86.0</td>
<td>43.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1200</td>
<td>1</td>
<td>500</td>
<td>86.0</td>
<td>23.1</td>
<td>10</td>
<td>15.0</td>
</tr>
<tr>
<td><strong>ADJUST TO 700 GPM</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1215</td>
<td>722</td>
<td>87.5</td>
<td>42.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1230</td>
<td>722</td>
<td>86.5</td>
<td>45.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1245</td>
<td>722</td>
<td>86.0</td>
<td>46.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1300</td>
<td>715</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sheet No. 1 of 6 Sheets
PUMPING TEST RECORD
for
KALAUA EXP.  Well 4358-01
(name) (No.)

Hawaiian Island 8-HUL-E  Project or Job No. 19

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos·25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY 14, 1991</td>
<td>1400</td>
<td>715</td>
<td>86.0</td>
<td>46.2</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td>74.0</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1000</td>
<td>71.0</td>
<td>80.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- ADJUST RATE TO 1000 GPM -

- DECIBEL READING AT TANK SITE (GATE) 70 DB
- READING 120 MAKAII OF TANK SITE ON ACCESS ROAD - 62 DB
- RAINING
- RAIN HARD - LIGHTNING
- POLICE ON SITE
- RESPONDING TO NOISE COMPLAINT
- SEE MEMO

JANUARY 15, 1991

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos·25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0100</td>
<td>8</td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td>9</td>
<td>991</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td>9</td>
<td>990</td>
<td>67.5</td>
<td>88.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td>9</td>
<td>993</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td>10</td>
<td>991</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td>10</td>
<td>991</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td>11</td>
<td>993</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td>12</td>
<td>993</td>
<td>67.5</td>
<td>88.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>12</td>
<td>993</td>
<td>67.5</td>
<td>88.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>1001</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sheet No. 2 of 6 Sheets
# PUMPING TEST RECORD

**for**

**KALAOA Evtl. Well 4708-01**

**Hawaii Island** C-**11** Project or Job No. **19**

<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>JANUARY 15, 1991</strong></td>
<td>15</td>
<td>995</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td>13</td>
<td>998</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td></td>
<td>998</td>
<td>67.0</td>
<td>90.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300</td>
<td>14</td>
<td>1003</td>
<td>66.5</td>
<td>91.3</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td></td>
<td>1001</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td></td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td></td>
<td>1001</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>15</td>
<td>996</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td></td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td></td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td>16</td>
<td>998</td>
<td>66.5</td>
<td>91.3</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td></td>
<td>1003</td>
<td>70.0</td>
<td>88.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td></td>
<td>990</td>
<td>69.5</td>
<td>84.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td></td>
<td>996</td>
<td>69.0</td>
<td>85.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>JANUARY 16, 1991</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0100</td>
<td>17</td>
<td>993</td>
<td>69.0</td>
<td>85.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td></td>
<td>993</td>
<td>68.5</td>
<td>86.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td></td>
<td>993</td>
<td>68.5</td>
<td>86.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td></td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td>18</td>
<td>995</td>
<td>68.0</td>
<td>87.8</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td></td>
<td>995</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td></td>
<td>996</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td></td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td>19</td>
<td>993</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td>985</td>
<td>68.5</td>
<td>86.6</td>
<td>74.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td></td>
<td>1000</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td></td>
<td>990</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300</td>
<td></td>
<td>990</td>
<td>68.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sheet No. 3 of 6 Sheets
<table>
<thead>
<tr>
<th>Date</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline PS (feet)</th>
<th>Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos: 25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>16</td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>20</td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td>21</td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>87.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>22</td>
<td>1000</td>
<td>66.5</td>
<td>91.3</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January 17, 1991</td>
<td>0100</td>
<td>1000</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td>23</td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td></td>
<td>1001</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td></td>
<td>1001</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td>24</td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td></td>
<td>1000</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td></td>
<td>1003</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td></td>
<td>1001</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td>25</td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1300</td>
<td></td>
<td>990</td>
<td>66.0</td>
<td>92.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1400</td>
<td>26</td>
<td>990</td>
<td>65.5</td>
<td>92.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1500</td>
<td></td>
<td>990</td>
<td>65.5</td>
<td>92.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1600</td>
<td></td>
<td>990</td>
<td>65.5</td>
<td>92.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date &amp; Time</td>
<td>Sample No.</td>
<td>Pumping Rate (gpm)</td>
<td>Airline P&amp;l (feet)</td>
<td>Drawdown (feet)</td>
<td>Chlorides (ppm)</td>
<td>Temp. (°F)</td>
<td>Cond. (mmhos·25°C)</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>---------------------</td>
<td>---------------------</td>
<td>-----------------</td>
<td>-----------------</td>
<td>------------</td>
<td>-------------------</td>
</tr>
<tr>
<td>January 17, 1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700</td>
<td>17</td>
<td>996</td>
<td>65.5</td>
<td>93.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1800</td>
<td>27</td>
<td>996</td>
<td>65.5</td>
<td>93.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1900</td>
<td></td>
<td>1005</td>
<td>65.5</td>
<td>93.6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td></td>
<td>1001</td>
<td>65.0</td>
<td>94.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2100</td>
<td></td>
<td>996</td>
<td>65.0</td>
<td>94.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2200</td>
<td>29</td>
<td>1005</td>
<td>65.0</td>
<td>94.7</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2300</td>
<td></td>
<td>1001</td>
<td>65.0</td>
<td>94.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2400</td>
<td></td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>January 18, 1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0100</td>
<td></td>
<td>998</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0200</td>
<td>29</td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0300</td>
<td></td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0400</td>
<td></td>
<td>1006</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0500</td>
<td></td>
<td>1003</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0600</td>
<td>30</td>
<td>1001</td>
<td>64.5</td>
<td>95.9</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0700</td>
<td></td>
<td>1005</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800</td>
<td></td>
<td>1000</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0900</td>
<td></td>
<td>1005</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td>1000</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1100</td>
<td></td>
<td>1000</td>
<td>64.5</td>
<td>95.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Stop Pumping - Recovery**

**Meter Reading**

<table>
<thead>
<tr>
<th>Elapsed Time</th>
<th>Meters Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 minute</td>
<td>143774000</td>
</tr>
<tr>
<td>3 minutes</td>
<td>143836000</td>
</tr>
<tr>
<td>5 minutes</td>
<td>143836000</td>
</tr>
</tbody>
</table>

Ave. Q = 982 GPM
<table>
<thead>
<tr>
<th>Date &amp; Time</th>
<th>Sample No.</th>
<th>Pumping rate (gpm)</th>
<th>Airline Drawdown (feet)</th>
<th>Chlorides (ppm)</th>
<th>Temp. (°F)</th>
<th>Cond. (mmhos·25°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>JANUARY 18, 1991</td>
<td>7</td>
<td>0</td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>0</td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25</td>
<td></td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>30</td>
<td></td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>40</td>
<td></td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>50</td>
<td></td>
<td>105.0</td>
<td>2.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1200) 60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1300) 75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1400) 90</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1500) 105</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1600) 120</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1700) 150</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1800) 180</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1900) 210</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2000) 240</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2100) 270</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(2200) 300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**CHLORIDE TITRATION RECORD**

**for**

KALAoa Expl. Well 4358-01

<table>
<thead>
<tr>
<th>Hawaiian Island</th>
<th>Project or Job No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19</td>
</tr>
</tbody>
</table>

Titrations conducted by

<table>
<thead>
<tr>
<th>Sample No.</th>
<th>Date Taken</th>
<th>Sample Taken (ml)</th>
<th>Burette Rdg Before</th>
<th>AgNO₃(ml)</th>
<th>AgNO₃ - .2 ml Factor</th>
<th>Mult.</th>
<th>Chlorides ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>January 17, 1991</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>2200</td>
<td>50</td>
<td>18.8</td>
<td>20.0</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>30</td>
<td>0600</td>
<td>50</td>
<td>20.0</td>
<td>21.2</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>Sample No.</td>
<td>Date Taken</td>
<td>Sample Taken (ml)</td>
<td>Burette Rdg Before</td>
<td>Burette Rdg After</td>
<td>AgNO₃ (ml)</td>
<td>AgNO₃ - 0.2 ml Factor</td>
<td>Chlorides (ppm)</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
<td>-------------------</td>
<td>--------------------</td>
<td>-------------------</td>
<td>------------</td>
<td>-----------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td><strong>JANUARY 14, 1991</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q = 500 GPM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1200</td>
<td>50</td>
<td>17.1</td>
<td>18.3</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>Q = 700 GPM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1400</td>
<td>50</td>
<td>18.4</td>
<td>19.6</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>Q = 1000 GPM</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1500</td>
<td>50</td>
<td>19.7</td>
<td>20.9</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>1700</td>
<td>50</td>
<td>21.0</td>
<td>22.2</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>6</td>
<td>2100</td>
<td>50</td>
<td>22.4</td>
<td>23.6</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td><strong>JANUARY 15, 1991</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>0500</td>
<td>50</td>
<td>23.8</td>
<td>25.0</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>14</td>
<td>1300</td>
<td>50</td>
<td>17.5</td>
<td>18.7</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>16</td>
<td>2100</td>
<td>50</td>
<td>18.8</td>
<td>20.0</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td><strong>JANUARY 16, 1991</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>0500</td>
<td>50</td>
<td>20.1</td>
<td>21.3</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>22</td>
<td>2200</td>
<td>50</td>
<td>21.4</td>
<td>22.6</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td><strong>JANUARY 17, 1991</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>0600</td>
<td>50</td>
<td>23.0</td>
<td>24.2</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
<tr>
<td>26</td>
<td>1400</td>
<td>50</td>
<td>17.4</td>
<td>18.6</td>
<td>1.2</td>
<td>1.0</td>
<td>10</td>
</tr>
</tbody>
</table>

Note: The table shows the results of chloride titration for different flow rates and times. The pump test was conducted for 96 hours.
**KALAOA EXPLORATORY WELL 4358-01, KONA**

**96-HOUR PUMP TEST**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total depth</td>
<td>1850 ft.</td>
</tr>
<tr>
<td>Casing diameter</td>
<td>14 inches</td>
</tr>
<tr>
<td>Casing depth (solid)</td>
<td>1730 ft.</td>
</tr>
<tr>
<td>Casing depth (perforated)</td>
<td>1850 ft.</td>
</tr>
<tr>
<td>Water level</td>
<td>237.9 ft. above msl on January 4, 1991</td>
</tr>
<tr>
<td>Pumping rate</td>
<td>1000 gpm</td>
</tr>
<tr>
<td>Drawdown</td>
<td>96 ft.</td>
</tr>
<tr>
<td>Chlorides</td>
<td>10 ppm</td>
</tr>
</tbody>
</table>

Test date - January 14-18, 1991
96-HOUR CONTINUOUS PUMPING TEST
SUMMARY OF EVENTS

January 14, 1991
8:45 p.m. Police on site to notify us of a noise complaint filed by Mrs. Polly Tom. Explained importance of test and showed them decibel meter and DOH regulation. Everything o.k.

January 15, 1991
5:00 p.m. Mrs. & Mrs. Tom on site and wanted to speak to the DLNR representative. I explained the background and purpose of the project, showed her decibel readings. 52 decibels at her garage. She then proceeded to tell me her concerns for the next hour.

January 17, 1991
10:55 a.m. Bill Hashimoto (DOH) on site responding to a complaint from Mrs. Tom regarding diesel odor and oil spills. His job is to notify the contractor of proper clean-up procedures.
§11-43-3 Allowable noise levels in dBA at the
property line.

### Allowable Noise Levels Table

<table>
<thead>
<tr>
<th>Zoning Districts</th>
<th>Allowable Noise Levels in dBA</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daytime (7 a.m.-10 p.m.)</td>
</tr>
<tr>
<td></td>
<td>Nighttime (10 p.m.-7 a.m.)</td>
</tr>
<tr>
<td>Residential (R-1 through current R-70)</td>
<td>55</td>
</tr>
<tr>
<td>Preservation (P-1)</td>
<td>55</td>
</tr>
<tr>
<td>Apartment (A-1 through current A-5)</td>
<td>60</td>
</tr>
<tr>
<td>Hotel (H-1 and H-2)</td>
<td>60</td>
</tr>
<tr>
<td>Business (B-1 through current B-5)</td>
<td>60</td>
</tr>
<tr>
<td>Agricultural (AG-1 and AG-2)</td>
<td>70</td>
</tr>
<tr>
<td>Industrial (I-1 through current I-3)</td>
<td>70</td>
</tr>
</tbody>
</table>

(a) Noise levels shall not exceed the allowable noise levels for more than ten per cent of the time within any twenty-minute period, except by permit issued under §11-43-6.

(b) Where the allowable noise level between two adjacent zoning districts differ, the lower allowable noise level shall be used. For example, the allowable noise level for the residential district shall be used at the property line between residential and business districts.

(c) The limits specified in the allowable noise levels table shall apply subject to the order of precedence in which uses were initiated after the effective date of this rule; provided that a new order of precedence is established when any use is discontinued. The initiation of use shall be measured by the date of rezoning. For example, if agricultural or industrial operations are conducted next to a lot used as residence, the agricultural or industrial limits would apply if the building permit for the residence was obtained after agricultural or industrial operations had been initiated after the effective date of this rule. Residential limits would apply if the building permit for the residence was obtained before agricultural or industrial operations had been initiated.

<table>
<thead>
<tr>
<th>TO:</th>
<th>INITIAL:</th>
<th>PLEASE:</th>
<th>COMMENTS:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y. SHIROMA</td>
<td>L. Nanbu</td>
<td>See Me</td>
<td>KAWADA Exp. 0139-01</td>
</tr>
<tr>
<td>W. Koyanagi</td>
<td>R. Jinnai</td>
<td>Call</td>
<td>SAMPLE COLLECTED DURING SURGING OF WELL</td>
</tr>
<tr>
<td>Y. Shibuya</td>
<td>M. Ohye</td>
<td>Review &amp; Comment</td>
<td>Q = 740 GPM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Take Action</td>
<td>CCl2 = 15 PPM (LAB)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Investigate &amp; Report</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Draft Reply</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Acknowledge Receipt</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type Draft</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Type Final cc:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Xerox copies</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>File</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mail</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FOR YOUR:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Approval</td>
</tr>
<tr>
<td>Signature</td>
</tr>
<tr>
<td>Information</td>
</tr>
</tbody>
</table>
MEMORANDUM FOR THE RECORD

From: Glenn Bauer
Date: January 9, 1991
Subject: Surging of the Kalaoa Well, January 7, 1991

When Mitch Ohye and I arrived at the Kalaoa Well site at 2:45 pm on January 7, 1991, we were informed by Mr. Arthur Abe of Water Resources International that the pump had been lowered the additional 140' in the well. Surging of the well began at 3 pm.

Initial static pressure (using Water Resources pressure gauge) was 108 psi which translates to a static head of 244'± msl. The first surge rate was 735 gpm, the pressure dropping to 28 psi or 185'± of drawdown. As the well started to clear up the pressure rose to 40 psi or 157'± of drawdown. At 4 pm the rate was increased to 983 gpm with no change in pressure. Surging stopped at 4:15 pm. Surging will continue from January 8-9. A step-drawdown test is scheduled for later in the week, and the sustained for next week.
KALAOA WELL, STATE WELL NO. 4358-01
Geologic Log

<table>
<thead>
<tr>
<th>Depth Interval (ft.)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-27</td>
<td>No sample present</td>
</tr>
<tr>
<td>27-30</td>
<td>Gray vesicular aa containing minor olivine phenocrysts--very small &lt; 1 mm across</td>
</tr>
<tr>
<td>30-50</td>
<td>No sample present</td>
</tr>
<tr>
<td>50-60</td>
<td>Medium gray slightly vesicular aa</td>
</tr>
<tr>
<td>60-70</td>
<td>Mixture of brown pahoehoe and medium gray aa</td>
</tr>
<tr>
<td>70-210</td>
<td>No sample present</td>
</tr>
<tr>
<td>210-220</td>
<td>Dense dark gray aa containing minor olivine phenocrysts</td>
</tr>
<tr>
<td>220-230</td>
<td>Mixture of gray aa and gray-brown pahoehoe</td>
</tr>
<tr>
<td>230-240</td>
<td>Same as above, except minor plagioclase feldspar phenocrysts present in aa</td>
</tr>
<tr>
<td>240-250</td>
<td>Gray-brown pahoehoe</td>
</tr>
<tr>
<td>250-260</td>
<td>No sample present</td>
</tr>
<tr>
<td>260-270</td>
<td>Mixture of plagioclase-phyric gray aa and brown aphyric pahoehoe</td>
</tr>
<tr>
<td>270-300</td>
<td>No sample present</td>
</tr>
<tr>
<td>300-320</td>
<td>Brown-gray pahoehoe transitional to aa with minor olivine and plagioclase phenocrysts</td>
</tr>
<tr>
<td>320-330</td>
<td>Mixture of scoriaceous pahoehoe and dense aa--both containing plagioclase phenocrysts 1-2 mm across</td>
</tr>
<tr>
<td>330-340</td>
<td>Scoriaceous gray pahoehoe containing olivine and plagioclase phenocrysts 1-2 mm across</td>
</tr>
<tr>
<td>340-350</td>
<td>Mixture of brown pahoehoe and dark gray pahoehoe transitional to aa containing minor olivine phenocrysts 1-2 mm across</td>
</tr>
<tr>
<td>Interval (°C)</td>
<td>Description</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>350-360</td>
<td>Mixture of tan and gray pahoehoe containing minor plagioclase phenocrysts</td>
</tr>
<tr>
<td>360-370</td>
<td>Glassy brown pahoehoe with some secondary mineralization in vesicles</td>
</tr>
<tr>
<td>370-380</td>
<td>Reddish gray vesicular aa containing minor olivine phenocrysts</td>
</tr>
<tr>
<td>380-390</td>
<td>No sample present</td>
</tr>
<tr>
<td>390-410</td>
<td>Brown gray vesicular pahoehoe containing olivine and plagioclase phenocrysts about 1 mm across</td>
</tr>
<tr>
<td>410-420</td>
<td>Dense dark gray aa containing accicular plagioclase phenocrysts 2-3 mm long and &lt; 1 mm wide</td>
</tr>
<tr>
<td>420-430</td>
<td>Reddish brown vesicular aa containing minor plagioclase phenocrysts</td>
</tr>
<tr>
<td>430-440</td>
<td>Red-brown aa</td>
</tr>
<tr>
<td>440-450</td>
<td>Dense dark gray aa containing minor plagioclase phenocrysts</td>
</tr>
<tr>
<td>450-460</td>
<td>No sample present</td>
</tr>
<tr>
<td>460-480</td>
<td>Plagioclase-phyric dark gray aa</td>
</tr>
<tr>
<td>480-510</td>
<td>No sample present</td>
</tr>
<tr>
<td>510-530</td>
<td>Red-gray aa containing olivine and plagioclase phenocrysts</td>
</tr>
<tr>
<td>530-540</td>
<td>No sample present</td>
</tr>
<tr>
<td>540-550</td>
<td>Dark gray aa containing minor plagioclase phenocrysts</td>
</tr>
<tr>
<td>550-560</td>
<td>No sample present</td>
</tr>
<tr>
<td>560-570</td>
<td>Plagioclase-phyric brown-gray pahoehoe transitional to aa</td>
</tr>
<tr>
<td>570-580</td>
<td>No sample present</td>
</tr>
</tbody>
</table>
| 580-600      | Plagioclase-phyric brown-gray pahoehoe transitional to aa--phenocrysts are 5-10% of sample and about
<table>
<thead>
<tr>
<th>2mm long</th>
</tr>
</thead>
<tbody>
<tr>
<td>600-610</td>
</tr>
<tr>
<td>610-620</td>
</tr>
<tr>
<td>620-630</td>
</tr>
<tr>
<td>630-640</td>
</tr>
<tr>
<td>640-650</td>
</tr>
<tr>
<td>650-660</td>
</tr>
<tr>
<td>660-670</td>
</tr>
<tr>
<td>670-680</td>
</tr>
<tr>
<td>680-690</td>
</tr>
<tr>
<td>690-700</td>
</tr>
<tr>
<td>700-710</td>
</tr>
<tr>
<td>710-720</td>
</tr>
<tr>
<td>720-730</td>
</tr>
<tr>
<td>730-740</td>
</tr>
<tr>
<td>740-750</td>
</tr>
<tr>
<td>750-760</td>
</tr>
<tr>
<td>760-770</td>
</tr>
<tr>
<td>Time</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>770-780</td>
</tr>
<tr>
<td>780-790</td>
</tr>
<tr>
<td>790-800</td>
</tr>
<tr>
<td>800-810</td>
</tr>
<tr>
<td>810-820</td>
</tr>
<tr>
<td>820-830</td>
</tr>
<tr>
<td>830-840</td>
</tr>
<tr>
<td>840-850</td>
</tr>
<tr>
<td>850-860</td>
</tr>
<tr>
<td>860-870</td>
</tr>
<tr>
<td>870-880</td>
</tr>
<tr>
<td>880-890</td>
</tr>
<tr>
<td>890-900</td>
</tr>
<tr>
<td>900-910</td>
</tr>
<tr>
<td>910-920</td>
</tr>
<tr>
<td>920-930</td>
</tr>
<tr>
<td>930-940</td>
</tr>
<tr>
<td>940-950</td>
</tr>
<tr>
<td>950-960</td>
</tr>
<tr>
<td>960-970</td>
</tr>
<tr>
<td>Time</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>970-980</td>
</tr>
<tr>
<td>980-990</td>
</tr>
<tr>
<td>990-1020</td>
</tr>
<tr>
<td>1020-1030</td>
</tr>
<tr>
<td>1030-1040</td>
</tr>
<tr>
<td>1040-1050</td>
</tr>
<tr>
<td>1050-1060</td>
</tr>
<tr>
<td>1060-1070</td>
</tr>
<tr>
<td>1070-1080</td>
</tr>
<tr>
<td>1080-1090</td>
</tr>
<tr>
<td>1090-1100</td>
</tr>
<tr>
<td>1100-1110</td>
</tr>
<tr>
<td>1110-1120</td>
</tr>
<tr>
<td>1120-1130</td>
</tr>
<tr>
<td>1130-1140</td>
</tr>
<tr>
<td>1140-1150</td>
</tr>
<tr>
<td>1150-1160</td>
</tr>
<tr>
<td>1160-1170</td>
</tr>
<tr>
<td>1170-1180</td>
</tr>
<tr>
<td>Time</td>
</tr>
<tr>
<td>-------</td>
</tr>
<tr>
<td>1180-1190</td>
</tr>
<tr>
<td>1190-1200</td>
</tr>
<tr>
<td>1200-1220</td>
</tr>
<tr>
<td>1220-1230</td>
</tr>
<tr>
<td>1230-1240</td>
</tr>
<tr>
<td>1240-1260</td>
</tr>
<tr>
<td>1260-1290</td>
</tr>
<tr>
<td>1290-1300</td>
</tr>
<tr>
<td>1300-1320</td>
</tr>
<tr>
<td>1320-1330</td>
</tr>
<tr>
<td>1330-1340</td>
</tr>
<tr>
<td>1340-1360</td>
</tr>
<tr>
<td>1360-1370</td>
</tr>
<tr>
<td>1370-1410</td>
</tr>
<tr>
<td>1410-1420</td>
</tr>
<tr>
<td>1420-1470</td>
</tr>
<tr>
<td>1470-1480</td>
</tr>
<tr>
<td>1480-1500</td>
</tr>
<tr>
<td>1500-1530</td>
</tr>
<tr>
<td>Time Period</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>1530-1540</td>
</tr>
<tr>
<td>1540-1550</td>
</tr>
<tr>
<td>1550-1560</td>
</tr>
<tr>
<td>1560-1570</td>
</tr>
<tr>
<td>1570-1580</td>
</tr>
<tr>
<td>1580-1590</td>
</tr>
<tr>
<td>1590-1600</td>
</tr>
<tr>
<td>1600-1610</td>
</tr>
<tr>
<td>1610-1620</td>
</tr>
<tr>
<td>1620-1630</td>
</tr>
<tr>
<td>1630-1640</td>
</tr>
<tr>
<td>1640-1650</td>
</tr>
<tr>
<td>1650-1660</td>
</tr>
<tr>
<td>1660-1670</td>
</tr>
<tr>
<td>1670-1720</td>
</tr>
<tr>
<td>1720-1730</td>
</tr>
<tr>
<td>1730-1740</td>
</tr>
<tr>
<td>1740-1760</td>
</tr>
<tr>
<td>1760-1770</td>
</tr>
<tr>
<td>1770-1800</td>
</tr>
<tr>
<td>Year Interval</td>
</tr>
<tr>
<td>--------------</td>
</tr>
<tr>
<td>1800-1810</td>
</tr>
<tr>
<td>1810-1820</td>
</tr>
<tr>
<td>1820-1830</td>
</tr>
<tr>
<td>1830-1840</td>
</tr>
<tr>
<td>1840-1850</td>
</tr>
</tbody>
</table>

Note to log: The terms "aa" and "pahoehoe" are used to denote the type of lava flow from which they are derived. It is also assumed that these cuttings are basalt. The use of the term "rock" is to denote a sample that may be trachyte and from a different type of lava flow or structure. Glenn Bauer
From 1576' - CMT to 10' Yds. to 1241'
1241' - CMT 10 Yds. to Same (No Gain)
1241' - 10 Yds. to 1000'
1000' - 10 Yds. to 735'
735' - 10 Yds. to Same (No Gain)
735' - 10 Yds. to 640'
640' - 5 Yds. to 640' (No Gain)
640' - 10 Yds. to 640' (No Gain)
640' - Gravel Pack w/ 5/8" Rock (25 Tons up to 580')
580' - CMT 10 Yds. to 840' (Gravel Pack to 300')
800' - CMT 10 Yds. to 50'

Dec. 18, 1990
Water Resources Kalaoa Well 435-8-01
<table>
<thead>
<tr>
<th>CONSIGNEE ACCOUNT NO.</th>
<th>DESTINATION</th>
<th>SHIPPER'S ACCOUNT NO.</th>
<th>ORIGIN</th>
<th>EXCESS VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NAME</th>
<th>ADDRESS</th>
<th>NAME</th>
<th>ADDRESS</th>
<th>RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dept. of Camp</td>
<td>HONOLULU, HAWAI</td>
<td>LTD..COM. INC.</td>
<td></td>
<td>15.00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PICK UP</th>
<th>DELIVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHIPPER'S C.O.D.</th>
<th>C.O.D. FEE</th>
<th>TAX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHIPPER PAYS</th>
<th>CONSIGNEE PAYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>15.75</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>NO. OF PIECES</th>
<th>GROSS WT. LBS.</th>
<th>DIMENSIONAL WT. LBS.</th>
<th>COMMODITY CODE</th>
<th>DECLARED VALUE</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SHIPPER'S SIGNATURE</th>
<th>ACCEPTING AGENT</th>
<th>DATE</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td></td>
<td>12/1</td>
<td>12:00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DESCRIPTION OF GOODS</th>
<th>RELEASING AGENT</th>
<th>ITEM(S) ACCEPTED AT SHIPPER'S RISK</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARE SUPPLIES</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REMARKS</th>
<th>PREPAID</th>
<th>COLLECT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ATTN. D. LEE</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>RECEIVED IN GOOD CONDITION EXCEPT AS NOTED.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PREPAID</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PRINT NAME:</th>
<th>DATE</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>M. M. V. graves</td>
<td>12/1</td>
<td>12:00</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FLIGHT NO.</th>
<th>SERIAL</th>
<th>CHK</th>
<th>AIRLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>327</td>
<td></td>
<td>24123190</td>
</tr>
</tbody>
</table>

CARRIER'S lost/damage liability is limited to cargo's value described in terms 5 & 6 on the reverse side or shipper requests higher valuation and pays additional charges against the value shown here.
2. In connection with the shipment of the cargo by CARRIER for
      SHIPPER, CARRIER is acting for itself and/or in behalf of
      CON-
      SIGNOR. Such acting for itself and/or in behalf of
      CON-
      SIGNOR is related to the carriage as such in the cargo. This
      acting for itself and/or in behalf of CONSIGNOR is prepared by
      the
      SHIPPER and is subject to the terms and conditions stated
      in the SHIPPER'S request. Once the
      cargo has been delivered to CARRIER, the bill of lading shall be
      not be chang-
      ed or modified without CARRIER'S consent.

CARRIER has caused the following document, which may apply to the
shipment of this cargo, to be attached hereto, they are also included
as additional conditions of carriage. These tariffs are available for
SHIPPER'S examination.

4. The cargo described in this airbill was received by carrier on the
date specified and appeared to be in good order, (unless noted
differently in this airbill), for shipment in accordance with these
conditions of carriage.

5. The cargo's value is equal to $0.00 per pound or $500.00, whichever
is higher. However, SHIPPER may elect to declare a higher value
and must also pay additional charges. However, certain tariffs, that
apply may state that certain goods have a lesser value than
declarable. In the case, the lesser value stated in the tariffs will
be the declared value.

6. VIP freight is accepted under conditions set forth in item 5 above,
however the declared value cannot exceed $500.00.

7. SHIPPER must enter the amount of all SHIPPER'S C.O.D., which
shall be collected subject to the terms and rules of the delivering
CARRIER.

8. CARRIER'S route or apply unless SHIPPER inserts specific
routing.

9. Delivery will be made by the delivering CARRIER to the C.O.D-
SHIPPER at a point where delivery service is available or applicable
and charges unless instructions to deliver party terminates at a
point where delivery service is available or applicable.

10. Shipment is subject to all CARRIER terms and conditions of
shipment, which are described herein.

11. To accept these terms the party must sign and return to the carrier
    CARRIER'S receipt of the SHIPPER's signed airbill herein.
Per Morris Ota, a request was made for certification of bench mark at Kalsoa. We are transmitting letter from R.M. Towill certifying elevation. If there are any further questions, please feel free to call me.
Hilo, 3.0 mi. W. of Hilo, off of Kailua Rd., on a small rocky coppper nail painted "T.B.M. 1869" 1869.10

Hikolua, 4.0 mi. N. of Kailua, on a post of gate to house, on N. side of Hilo Rd., on a small kikui tree; copper nail painted "T.B.M. 1869" 1869.10

Hikolua, 5.2 mi. N. of Hilo, round a point or spur, upon which a house stands about 3.0 ft. back from road, on E. side of road; standard tablet cemented in solid rock, stamped 306.

Hali, 3.5 mi. N. of, at jet. of northern Hilo Rd., across Kailua Rd., from small store to N. side of main Rd., in front of 20 ft. of halea; copper nail painted "T.B.M. 1869" 1869.10

McQuite ranch, 3.8 mi. S. of, on E. side of road, 20 ft. of small gate; copper nail painted "T.B.M. 1869" 1874.09

McQuite ranch, 2.8 mi. S. of, on E. side of road, between church and Aluau's store at Kailua, near stone wall; standard tablet stamped 1669 1669.10

McQuite ranch, 0.9 mi. E. of, on E. side of road, 100 ft. N. of house; copper nail painted "T.B.M. 1869" 1865.56
WELL CONSTRUCTION PERMIT

for

North Kona (Kalaoa) Exploratory Well
State Well No. 4358-01
Kalaoa, Hawaii

TO: Division of Water and Land Development
1151 Punchbowl Street, Room 227
Honolulu, Hawaii 96813

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct and test State Well No. 4358-01 for municipal use within Tax Map Key: 7-3-04:5 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. Ground elevation (referenced to mean sea level) determined by survey by a Hawaii-licensed surveyor.
c. As-built sectional drawing of the well.

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

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

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

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

MAY 8 1999
Date of Issuance

WILLIAM W. PATY

cc: USGS
Department of Health,
Drinking Water Program
Ground Water Protection Program
Hawaii Department of Water Supply
TO

DATE 11/8/69 TIME 11:25 PM

WHILE YOU WERE OUT

Anthony

Of 543-2722

Phone

<table>
<thead>
<tr>
<th>TELEPHONED</th>
<th>PLEASE CALL</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALLED TO SEE YOU</td>
<td>WILL CALL AGAIN</td>
</tr>
<tr>
<td>WANTS TO SEE YOU</td>
<td>URGENT</td>
</tr>
</tbody>
</table>

RETURNED YOUR CALL

Message: 7-3-17 31
Haseko has prepared well site at above TMK @ 2500 ft from Stale's 5Km (Kalaon) well.
Please:

- See Me
- Take Action By
- Route to Your Branch
- Review & Comment
- Draft Reply
- Acknowledge Receipt
- Xerox ___ copies
- File
- Mail
- For Information

Remarks:

Report done on 12/12/88 when reviewed by paper Eng. Dept.
E.R. done after testing and before use of well.
I assume County 2/85. We haven't before.
March 15, 1989

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

Dear Mr. Paty:

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATION
NORTH KONA (KALAOA) EXPLORATORY WELL
STATE WELL NO. 4358-01
KAILUA-KONA, HAWAII

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

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

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

3. According to the permit application, the proposed well is situated very close to an existing cemetery. It is important that this and any other potential sources of contamination be adequately addressed in the engineering report.
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
March 7, 1989

MR WILLIAM W PATY
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU HI 96809

SUBJECT: WELL CONSTRUCTION PERMIT APPLICATIONS, ISLAND OF HAWAII
North Kona (Kalaoa) Exploratory Well (No 4358-01)
Kau Exploratory Well (No. 0139-01)
TMK: 7-3-04:5 & TMK: 9-3-03:14

We have reviewed the well permit applications and have no objections to
the proposed site locations. We have attached a copy of our drywell
location map for the proposed North Kona (Kalaoa) Well. Since there is a
drywell located just beyond the 1/4 mile limit. The County has no
drywells in the area of the Kau Exploratory Well.

Should you have any questions, please contact our Engineering Division at
961-8327.

HUGH Y. ONO, P.E.
Chief Engineer

STT:aa

Attachment
March 1, 1989

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

WELL CONSTRUCTION PERMIT APPLICATIONS

We have reviewed the Well Construction Permit Applications for the two (2) exploratory wells.

We support the State's programs for groundwater source investigation in these two (2) areas.

H. William Sewake
Manager

GK

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

Attn: Mr. Thomas Arizumi, Drinking Water Program

Dear Dr. Lewin:

Well Construction Permit Applications

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

Kau Exploratory Well, State Well No. 0139-01 and
North Kona (Kalaoa) Exploratory Well, State Well No. 4358-01.

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

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

Very truly yours,

WILLIAM W. PATY

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

Dear Mr. Sewake:

Well Construction Permit Applications

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

Kau Exploratory Well, State Well No. 0139-01 and
North Kona (Kalaea) Exploratory Well, State Well No. 4358-01.

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

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

Very truly yours,

WILLIAM W. PATY

MT:ES:ko

Enc.
FEB 22 1989

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

Dear Mr. Ono:

Well Construction Permit Applications

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

Kau Exploratory Well, State Well No. 0139-01 and
North Kona (Kalua) Exploratory Well, State Well No. 4358-01.

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

If you have any questions, please contact Manabu Tagomori at 548-7522.

Very truly yours,

WILLIAM W. PATY

ESiko
Enc.
APPLICATION FOR

X WELL CONSTRUCTION PERMIT

PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable USGS fee of $25.00 payable to the Department of Land and Natural Resources. (Filling fee waived for government agencies.) If necessary, phone 548-7543, Hydrology/Geology Section for assistance.

1. WELL LOCATION North Kona (Kala) Exploratory Well (No. 4358-01)
   Island Hawaii  Tax Map Key 7-3-045
   Address 73-4303 Hawaii Belt Road, Kailua-Kona, Hawaii 96740
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER
   Firm Name Division of Water and Land Development
   Contact Person Kazuo C. Akita
   Address 1151 Punchbowl Street Room 227; Honolulu, HI 96813
   Phone 548-7496
   LANDOWNER
   Firm Name State of Hawaii
   Contact Person
   Address
   Phone

3. PROPOSED CONTRACTOR FOR: ☒ Well Drilling ☒ Pump Installation
   Name TO BE DETERMINED
   Address
   Phone
   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 ____________ gallons per day

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

Well Owner (print) Kazuo C. Akita
Landowner (print) ____________________________
Signature ____________________________
Date 2/27/89
__________________________
Field Checked By
__________________________
Latitude

Hydrologic Unit
State Well No.

For Official Use Only:
Briefly describe the proposed work:

Explore for a groundwater source by drilling approximately 1,840 feet deep. Well will be tested for its chloride content, pumping rate and drawdown for the determination of its safe yield.

Elevation at top of casing 1,742 ft., msl.

Cement Grout 1,735 ft.

Hole Dia. 20 in.

Total Depth 1,840 ft.

Rock Packing 6 ft.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
Proposed North Kona (Kalaoa) Exploratory Well Site
Well No. 4358-01
TMK: 7-3-04:5

KALAOA 4th & 5th NORTH KONA, HAWAII.
KALAOA WATER SYSTEM EXTENSION
WATER TANK SITE
AND EASEMENT FOR UTILITY AND ACCESS PURPOSES
Kalaoa 4th, North Kona, Island of Hawai‘i, Hawaii
Scale: 1 inch = 50 feet

EXHIBIT "B"
FROM: Planning Branch  DATE: 1/20/89  FILE IN: 

TO: INITIAL:  PLEASE:  REMARKS:  

_ _ G. AKITA  _ _ See Me  _ _ Kolano Will
_ _ P. Matsuo  _ _ Call  
_ _ H. Young  _ _ Review & Comment
_ _ T. Nakama  _ _ Take Action
_ _ Z. Agraan  _ _ Investigate & Report
_ _ B. Koyanagi  _ _ Draft Reply
_ _ F. Ching  _ _ Acknowledge Receipt
_ _ M. Tagomori  _ _ Type Draft
_ _ D. Lum  _ _ Type Final  cc: ___
_ _ G. Matsumoto  _ _ Xerox ___ copies
_ _ L. Chang  _ _ File
_ _ S. Kokubun  _ _ Mail

FOR YOUR  _ _ Approval
_ _ Signature
_ _ Information

Rev. 4/88
Mr. Robert Punihaoale, Sr.
Mauna Ziona Congregational Church
73-4310 Hawaii Belt Road
Kailua-Kona, Hawaii 96740

Dear Mr. Punihaoale, Sr.:

North Kona Exploratory Well
Right-of-Entry

As you know, the State desires to explore for water on a parcel of land identified by TMK: 7-3-04:5. Since the site is within the area that is under General Lease B-4577 to Mauna Ziona Congregational Church, we would appreciate a right-of-entry to survey, drill and test an exploratory well. Should the test results be favorable, we would then proceed to amend the lease to withdraw the well site.

Should this right-of-entry be granted, please be assured that reasonable precautions will be exercised to prevent any damage. However, should damage occur, the damage will be restored to its reasonably possible original condition. To the extent permitted by law, you will also be held harmless from any injuries and/or damages resulting from the State's exercise of this right-of-entry.

This right-of-entry may be granted by signing in the space below and returning the original to us in the enclosed self-addressed stamped envelope.
Mr. Punihaole

January 4, 1989

Your favorable consideration of this request will be appreciated. Should you have any questions on this matter, please feel free to write us or contact Mr. Gordon Akita of the Planning Branch in Honolulu at 548-7496.

Sincerely,

MANABU TAGOMORI
Manager-Chief Engineer

Right-of-Entry Granted
For Surveying and Construction Work

By: Louis Punihaole
Date: 1-14-89

By: Idma Punihaole
Date: 1-14-89

Attachment

cc: Division of Land Management
Engineering Branch, DOWALD

MAUNA LOKA CONGREGATIONAL CHURCH. 73-4303 HI. BELT RD. KAILUA, HI. 96740

TRUSTEES ARE: NORMAN KEANAINA
2. CAROL KEANAINA