I stand corrected!
It's just inside the boundary of Makawao Aquifer.
FAX: Transmitting 4 pages, including this one; call 587-0251 with any reception problems.

TO: Sharon

FROM: Charlie

transmitting 2 maps showing location of Esty Well (4821.01)

The coordinates are expressed in the well no:

Lat: 156° 21' 
Long: 20° 48'

seconds unavailable but estimable from map

Return Fax: 587-0219
Return Post: P.O.Box 621, Honolulu 96809
<table>
<thead>
<tr>
<th>WELL NO</th>
<th>Head</th>
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<th>Aquifer Thickness</th>
<th>Active Length</th>
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<th>HARR 10^46</th>
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<th>ZANZAR</th>
<th>POLUBARIN</th>
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TO: Jodie Yasuda
Company: Kiefer & Merchant LLC
Phone Number: 808-871-6016
Fax Number: 808-871-6017
Date: September 2, 2005
Subject: Well Completion Report & Pump Test
Well # 4821-01
No. Pages: 11
WCR 2 Check for Well No. 4821-01 (survey to regulation memo)

1. **Pump Tests Check** (special condition of PIP? Yes/No) Glenn Bauder (initial if yes)

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<th>Yes</th>
<th>No</th>
<th>If no, describe deficiency</th>
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<tbody>
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   **Step-Drawdown Test:**
   - acceptable
   - followed WCPI Stds
   - analysis attached
   - proposed pump cap o.k.

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

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

   **Stream Surface Water Impacted:**
   - If yes, identify most probable stream

   

2. **Pump Installation Check** Mitch Ohye (initial)

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<th>Yes</th>
<th>No</th>
<th>If no, describe deficiency</th>
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   data complete
   - followed WCPI Stds
   - wellphys.dbf updated
   - welaplic.dbf updated

   

---

Walter wrote:

1. What pump rate?
   - Constant-rate test appears fully filled out - what do you want to see?
   - We pumped at 82 gpm.
   - How often do they measure the rate during the test?

---

Signature:

Charley

Ray

Sub

End

End
# WELL COMPLETION REPORT

**12/17/97 WCR Form**

**Part I. Well Construction**

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<tr>
<th>Instruction</th>
<th>Description</th>
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<td>Instructions:</td>
<td>Please print or type and submit completed report within 60 days after well completion to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 587-0225, or 1-800-468-4644 Extension 70225.</td>
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<th>35. State Well No.:</th>
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<td>Island:</td>
<td>Maui</td>
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## PART I. WELL CONSTRUCTION REPORT

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<td>____________________</td>
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<tr>
<td>38. Name of driller who performed work:</td>
<td>____________________</td>
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<tr>
<td>39. Type of rig/construction:</td>
<td>____________________</td>
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<td>40. Date(s) Well Construction and pump tests (if any) completed:</td>
<td>____________________</td>
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<td>41. GROUND ELEVATION (referenced to mean sea level, msl):</td>
<td>____________________ ft.</td>
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<td>Well Bench Mark (description/location):</td>
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<tr>
<td>Elevation (msl):</td>
<td>____________________ ft.</td>
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<th>Please attach geologic log (if available or if required by permit)</th>
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<td>Depths (ft.) Rock Description, Water Level, Dates, etc.</td>
<td>Depths (ft.) Rock Description, Water Level, Dates, etc.</td>
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</table>

| 43. Total depth of well below ground: | ____________________ ft. |
| 44. Hole size: | inch dia. from ______ ft. to ______ ft. below ground |
| | inch dia. from ______ ft. to ______ ft. below ground |
| | inch dia. from ______ ft. to ______ ft. below ground |

| 45. Casing installed: | in. I.D. x in. wall solid section to ______ ft. below ground |
| | in. I.D. x in. wall perforated section to ______ ft. below ground |
| Casing Material/Slot Size: | ____________________ |

| 46. Annulus: | Grouted from ______ ft. below ground to ______ ft. below ground |
| | Gravel packed from ______ ft. below ground to ______ ft. below ground |

| 47. Initial water level: | ______ ft. below ground. Date and time of measurement: ____________________ |
| 48. Initial chloride: | ______ ppm Date and time of sampling: ____________________ |
| 49. Initial temperature: | ______ °F Date and time of measurement: ____________________ |

| 50. PUMPING TESTS: | Reference Point (R.P.) used: ____________________, which elevation is ______ ft. |
| (1) Step-Drawdown Test Date | (2) Long-term Aquifer Test Date |
| Start water level | Start water level |
| ft. below R.P. | ft. below R.P. |
| End water level | End water level |
| ft. below R.P. | ft. below R.P. |

| 51. Pump Test Procedures data & graphs (12/17/97 SDPTD & CRPTD Forms) attached? | Yes _ No |
| 52. As-built drawings attached? | Yes _ No |
| 53. Other remarks/comments: | (On back of this form) |

---

Well Drilling Contractor (print) ____________________ C-57 Lic. No. ____________________

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<th>Date</th>
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Surveyor (print) ____________________ Lic. No. ____________________

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Applicant (print) ____________________

<table>
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<tr>
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<th>Date</th>
</tr>
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</table>
PART II. (PERMANENT) PUMP INSTALLATION REPORT

54. Pump Installation Company: Wailau Drilling Inc

55. Name of person performing work: Mike Robertson

56. Date Pump Installation Completed: 5/17/00

57. PUMP INSTALLATION:
   Pump Type, Make, Serial No.: Grundfos Submersible A-12960032-7948 Capacity: 65 gpm
   Motor type, H.P., Voltage, rpm: Sub. 400V 460V 3Ph. 2450 RPM
   Depth of Pump Intake Setting: 1147 ft. below R.P.M. which elevation is 1140.5 ft.
   Depth to bottom of airline: 1147 ft. below casing top, which elevation is 1140.5 ft.
   Pumping Head is 1400 ft. Type of flow meter: turbine which measures in gal

58. As-built drawings attached: Yes

59. Other remarks/comments: (See below)

Pump Installation Contractor (print) Wailau Drilling C-57 Lic. No. 20115
Signature Mike Robertson Date 5/17/00

Applicant (print) Edward T. Esty II
Signature Edward T. Esty II Date 5/10/2000

8. (cont’d) DRILLER’S LOG (cont’d):

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Post-It® Fax Note 7671 Date 4-19-05 # of pages 2
To USA APPARETTE CURM
From
Co./Dept.
Phone #
Fax # 521-1267
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why isn't lochmole on well paid + 0.01^

precision? (survey?)

20 Apr 00
35. State Well No.: 4821-01  
Well Name: Omaopi'o-Esty Well  
Island: Maui

36. Location/Address: Omaopi'o, Makawao  
Tax Map Key: 2-3-3171

PART I. WELL CONSTRUCTION REPORT

37. Drilling Company: Wai'anae Drilling Inc.  
38. Name of driller who performed work: Mike Robertson  
39. Type of rig/construction: Air Rotary

40. Date(s) Well Construction and pump tests (if any) completed: 1/16/00

41. GROUND ELEVATION (referenced to mean sea level, msl): 1139.8 ft.  
   Well Bench Mark (description/location): Well Head  
   Elevation(msl): 1490.5 ft.

42. DRILLER'S LOG: Please attach geologic log (if available or if required by permit)
   Depths (ft.) Rock Description, Water Level, Dates, etc.  
   Depths (ft.) Rock Description, Water Level, Dates, etc.
   0 to 25 Red Clay  
   25 to 30 Tan Clay  
   30 to 55 Blue Rock  
   55 to 65 Red Clay

43. Total depth of well below ground: 1200 ft.

44. Hole size: 12 1/2 inch dia. from 0 ft. to 1200 ft. below ground  
   11 inch dia. from 0 ft. to 11 ft. below ground  
   8 inch dia. from 11 ft. to 12 ft. below ground

45. Casing installed: 6 in. I.D. x 25 in. wall solid section to 1150 ft. below ground  
   6 in. I.D. x 25 in. wall perforated section to 1170 ft. below ground  
   Casing Material/Slot Size: full flow layered  
   Gravel packed from 0 ft. below ground to 535 ft. below ground  
   Casing from 0 ft. below ground to NA ft. below ground

46. Annulus: Grouted from 0 ft. below ground to 535 ft. below ground  
   Casing from 0 ft. below ground to NA ft. below ground

47. Initial water level: 1127.3 ft. below ground.  
   Date and time of measurement: 1/10/00

48. Initial chloride: 190 ppm  
   Date and time of sampling: 1/10/00

49. Initial temperature: 69 °F  
   Date and time of measurement: 1/10/00

50. PUMPING TESTS: Reference Point (R.P.) used: well head  
   Long-term Aquifer Test Date: 12/17/87
   (1) Step-Drawdown Test Date NA  
   Start water level ______ ft. below R.P.  
   End water level ______ ft. below R.P.
   (2) Long-term Aquifer Test Date 12/17/87  
   Start water level 1127.3 ft. below R.P.  
   End water level 1137.3 ft. below R.P.

51. Pump Test Procedures data & graphs (12/17/87 SDPTD & CRPTD Forms) attached? Yes No

52. As-built drawings attached attached? Yes No

53. Other remarks/comments: (On back of this form)

Well Drilling Contractor (print) Mike Robertson  
C-57 Lic. No. 20115  
Signature Mike Robertson  
Date 1/16/00

Surveyor (print)  
Lic. No.  
Signature  
Date

Applicant (print) EDWARD ESTY  
Date Feb 8, 2000  
Signature
PART II.  (PERMANENT) PUMP INSTALLATION REPORT

54. Pump Installation Company: ________________________________

55. Name of person performing work: __________________________

56. Date Pump Installation Completed: __________________________

57. PUMP INSTALLATION:
   Pump Type, Make, Serial No.: ________________________________ Capacity: ______ gpm
   Motor type, H.P., Voltage, rpm:
   Depth of Pump Intake Setting ________ ft. below ________, which elevation is ________ ft.
   Depth to bottom of airline ________ ft. below ________, which elevation is ________ ft.
   Pumping Head is ________ ft. Type of flow meter: ____________ which measures in ________

58. As-built drawings attached? _ Yes _ No

59. Other remarks/comments: (See below)

Pump Installation Contractor (print) __________________________ C-57 Lic. No. __________
Signature __________________________ Date __________________________
Applicant (print) __________________________
Signature __________________________ Date __________________________

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

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19 & 25. Remarks: 4921-01 OMA0810 50%
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

WELL COMPLETION REPORT

12/17/97 WCR Form

Part I. Well Construction & Part II. Permanent Pump Installation

Instructions: Please print or type and submit completed report within 60 days after well completion to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96814. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 808-586-1200, or 1-800-448-0444 Extension 70226.

35. State Well No.: 4821-01
   Well Name: Omoapo-East Well
   Island: Maui

36. Location/Address: Omoapo, Nakawao
   Tax Map Key: 2-3-5-171

PART I.
WELL CONSTRUCTION REPORT

38. Name of driller who performed work: Mike Robertson
39. Type of rig/construction: Air Drilling
40. Date(s) Well Construction and pump tests (if any) completed: 11/6/97
41. GROUND ELEVATION (referenced to mean sea level, msl): 1133.8 ft.
   Well Bench Mark (description/location): Well Head
   Elevation (ft): 1140.5 ft.
42. DRILLER'S LOG: Please attach geologic log (if available or if required by permit)

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<tr>
<th>Depths (ft)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
<th>Depths (ft)</th>
<th>Rock Description, Water Level, Dates, etc.</th>
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</table>

43. Total depth of well below ground: 1200 ft.
44. Hole size: 12.5 in. dia. from 0 ft. to 1200 ft. below ground
   9 in. dia. from 1200 ft. to 1170 ft. below ground
   6 in. dia. from 1170 ft. to 65 ft. below ground
45. Casing installed: 6 in. I.D. x 12.5 in. wall solid section to 1150 ft. below ground
   6 in. I.D. x 12.5 in. wall perforated section to 1170 ft. below ground
   Casing Material/Slot Size: Full flow launder
46. Annulus: Grouted from 0 ft. below ground to 635 ft. below ground
   Gravel packed from NA ft. below ground to NA ft. below ground
47. Initial water level: 1127.5 ft. below ground.
48. Initial chloride: 19 ppm
49. Initial temperature: 64 F
50. PUMPING TESTS: Reference Point (R.P.) used: Well Head
   Which elevation is 1140.5 ft.
   (1) Step-Drawdown Test Date: NA
   (2) Long-term Aquifer Test Date: 11/6/97
51. Pump Test Procedures data & graphs (12/17/97 SDPTD & CKPTD Forms) attached? Yes _ No
52. As-built drawings attached? Yes _ No
53. Other remarks/comments: (On back of this form)

Well Drilling Contractor (print): Mike Robertson
Signature: Mike Robertson
Date: 11/6/00
C-67 Lic. No.: 20115

Surveyor (print): Erik S. Kaneshiro
Signature: Erik S. Kaneshiro
Lic. No.: 9826
Date: 12/1/00

Applicant (print): Edward Esty
Signature: Edward Esty
Date: 2/8/00
## CONSTANT-RATE PUMP TEST DATA

Pumped Well No. **4821-01**  
Observation well no.  
Pumped Well Name **Esty**  
Distance between Obs. & Pumped Well **1140.5** ft.  
Target Q **60** gpm  
Reference pt. for depth to water **10140.5** ft. msl  
Water level measurements by:  
- **[ ]** steel tape  
- **[ ]** pressure transducer  
- **[ ]** airline  

**Static Water Level @ start of test** **+2.5** ft. msl  

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<th>Actual elapsed time (min)</th>
<th>Depth to water (nearest 0.1 ft)</th>
<th>Drawdown (unadjusted to nearest 0.1 ft)</th>
<th>Pumping rate Q (gpm)</th>
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Time of day: **1100 PM**
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Max possible duration, water level or quality did not stabilize for any 24 period

Begin recovery data next page

Flow meter reading at end of pumped period: 261,600 gals

* *leon 31 May 00

1 Chloride sampling required
2 Use same ending drawdown figure as start for recovery
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<th>Actual elapsed time (min)</th>
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<th>Recovery Drawdown (unadjusted to nearest 0.1 ft)</th>
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<th>EC (μhos)</th>
<th>Cl- (mg/l)</th>
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END TEST  Date: 12/9/97  Time of day: 5:00 PM

ADDITIONAL REMARKS:

Person in charge of pump test (print): Mike Robertson

Signature: [Signature]

The signature above indicates that the data reported on this form is accurate and true to the best of the person's knowledge who operated this pump test.
OMAPPEO-Esty Well  Constant Rate Pump Test
Pural Water Specialty Company
(continued)

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<th>QC Batch#</th>
<th>Method</th>
<th>Analyte</th>
<th>Result</th>
<th>Units</th>
<th>MRL</th>
<th>Dilution</th>
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( Surrogate ) BDMC
113     % Rec

Diquat and Paraquat

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EDB and DBCP by GC-ECD

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( Surrogate ) 1,2-dibromopropane
122     % Rec

Herbicides by 515.1

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( Surrogate ) 2,4-Dichlorophenolacetic acid
91     % Rec

ICPMS Metals

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Prepared Analyzed QC Batch# Method Analyte Result Units MRL Dilution

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08/01/00 08/01/00 120915 (EPA/ML 200.8) Chromium, Total, ICAP/MS 11 ug/l 2.0 1
08/01/00 08/01/00 120915 (EPA/ML 200.8) Copper, Total, ICAP/MS ND ug/l 2.0 1
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08/01/00 08/01/00 120915 (EPA/ML 200.8) Antimony, Total, ICAP/MS ND ug/l 1.0 1
08/01/00 08/01/00 120915 (EPA/ML 200.8) Selenium, Total, ICAP/MS ND ug/l 5.0 1
08/01/00 08/01/00 120915 (EPA/ML 200.8) Thallium, Total, ICAP/MS ND ug/l 1.0 1

SDWA Pesticides

07/24/00 07/28/00 121109 (MRL/508) PCB 1016 Aroclor ND ug/l 0.070 1
07/24/00 07/28/00 121109 (MRL/508) PCB 1221 Aroclor ND ug/l 0.10 1
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07/24/00 07/28/00 121109 (MRL/508) PCB 1242 Aroclor ND ug/l 0.10 1
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07/24/00 07/28/00 121109 (MRL/508) PCB 1260 Aroclor ND ug/l 0.10 1
07/24/00 07/28/00 121109 (MRL/508) Alpha-BHC ND ug/l 0.010 1
07/24/00 07/28/00 121109 (MRL/508) Aldrin ND ug/l 0.010 1
07/24/00 07/28/00 121109 (MRL/508) Beta-BHC ND ug/l 0.010 1
07/24/00 07/28/00 121109 (MRL/508) Chlordane ND ug/l 0.10 1
07/24/00 07/28/00 121109 (MRL/508) Chlorthalidone (Draconil,Bravo) ND ug/l 0.010 1
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Pural Water Specialty Company

(continued)

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**Volatile Organic Compounds**

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<td>Bromofluorobenzene-PID</td>
<td>98</td>
<td>% Rec</td>
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<td>Surrogate</td>
<td>Chlorofluorobenzene-ELCD</td>
<td>83</td>
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<td>Chlorofluorobenzene-PID</td>
<td>95</td>
<td>% Rec</td>
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</table>
MONTGOMERY WATSON LABORATORIES  
A Division of Montgomery Watson Americas, Inc.  
595 East Walnut Street  
Pasadena, California 91101  
Tel: 826 568 8400 Fax: 826 568 6324  
1 800 568 LABS (1 800 568 5227)  

Pural Water Specialty Company  
Earl Ichimura  
1955 Vineyard St.  
Wailuku, HI 96793  

<table>
<thead>
<tr>
<th>Prepared</th>
<th>Analysed</th>
<th>QC Batch#</th>
<th>Method</th>
<th>Analyte</th>
<th>Result</th>
<th>Units</th>
<th>MRL</th>
<th>Dilution</th>
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</thead>
<tbody>
<tr>
<td>WELL 1A-M (2007200057)</td>
<td>Samples on 07/19/00</td>
<td></td>
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<tr>
<td>07/25/00</td>
<td>120458</td>
<td>( ML/SM 4500CN) Cyanide</td>
<td>ND</td>
<td>mg/l</td>
<td>0.025</td>
<td>1</td>
<td></td>
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<tr>
<td>07/24/00</td>
<td>120857</td>
<td>( ML/EPA 546.1) Dinitrophenol</td>
<td>ND</td>
<td>ug/l</td>
<td>20</td>
<td>4</td>
<td></td>
<td></td>
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<tr>
<td>07/31/00</td>
<td>120778</td>
<td>( EPA/ML 340.2) Fluoride</td>
<td>0.09</td>
<td>mg/l</td>
<td>0.050</td>
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<tr>
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<td>ug/l</td>
<td>6.0</td>
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<td>07/24/00</td>
<td>120276</td>
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<td>FGL</td>
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525 Semivolatiles by GC/MS  

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<tr>
<th>Batch</th>
<th>Method</th>
<th>Analyte</th>
<th>Result</th>
<th>Units</th>
<th>MRL</th>
<th>Dilution</th>
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</thead>
<tbody>
<tr>
<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
<td>( ML/EPA 525.2) 2,4-Dinitrotoluene</td>
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<td>07/25/00</td>
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<td>( ML/EPA 525.2) alpha-Chlordane</td>
<td>ND</td>
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<td>0.050</td>
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<tr>
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<td>07/31/00</td>
<td>120697</td>
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<td>ND</td>
<td>ug/l</td>
<td>0.10</td>
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<tr>
<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
<td>( ML/EPA 525.2) Alachlor</td>
<td>ND</td>
<td>ug/l</td>
<td>0.050</td>
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<tr>
<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
<td>( ML/EPA 525.2) Aldrin</td>
<td>ND</td>
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<td>0.050</td>
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<td>07/25/00</td>
<td>07/31/00</td>
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<td>( ML/EPA 525.2) Anthracene</td>
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<tr>
<td>07/25/00</td>
<td>07/31/00</td>
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<td>ND</td>
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<td>0.050</td>
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<tr>
<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
<td>( ML/EPA 525.2) Benz(a)anthracene</td>
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<td>ug/l</td>
<td>0.050</td>
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<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
<td>( ML/EPA 525.2) Benzo(a)pyrene</td>
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<td>07/25/00</td>
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<td>120697</td>
<td>( ML/EPA 525.2) Di(2-Ethylhexyl)phthalate</td>
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<tr>
<td>07/25/00</td>
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<td>120697</td>
<td>( ML/EPA 525.2) Caffeine</td>
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<td>07/25/00</td>
<td>07/31/00</td>
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<td>( ML/EPA 525.2) Chrysene</td>
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<td>07/25/00</td>
<td>07/31/00</td>
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<td>( ML/EPA 525.2) Dibenz(a,h)anthracene</td>
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<td>ug/l</td>
<td>0.050</td>
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<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
<td>( ML/EPA 525.2) Di-(2-Ethylhexyl)adipate</td>
<td>ND</td>
<td>ug/l</td>
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<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
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<td>ND</td>
<td>ug/l</td>
<td>0.50</td>
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<td>07/25/00</td>
<td>07/31/00</td>
<td>120697</td>
<td>( ML/EPA 525.2) Dieldrin</td>
<td>ND</td>
<td>ug/l</td>
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</table>
The LCS recovery is within the EPA method limit of 90-110%.

QC Type: MS
The MS recovery is within the EPA method limit of 80-120%.

QC Type: MSD
The MSD recovery is within the EPA method limit of 80-120%.

(QC batch#: 121109)
Test: Dibutyl chlorendate (surr)
QC Type: MS
Recovery failed low, TCMX within limits. Method allows for one surrogate to be within QC limits.
Group Comments

(TCDD) Analyzed by STL, formerly Quanterra, Sacramento, CA.

(QC batch#: 120405)
Test: Aldicarb (Temik)
QC Type: LCS1
within method QC limits of 80 to 120%

(QC batch#: 120697)
Test: Acenaphthylene
QC Type: LCS1
within method QC limits.
Test: Fluorene
QC Type: LCS1
within method QC limits.

(QC batch#: 120720)
Test: 2,4,5-TP (Silvex)
QC Type: LCS1
Within method limits. QIR-GC-00-238.
Test: Acifluorfen (qualitative)
QC Type: LCS1
Recovery failed low. Sample results may have a low bias, method defines acifluorfen as qualitative only. QIR-GC-00-238.
QC Type: MS
Recovery failed low. Sample results may have a low bias, method defines acifluorfen as qualitative only. QIR-GC-00-238.
Test: 3,5-Dichlorobenzoic acid
QC Type: LCS1
Within method limits. QIR-GC-00-238.
QC Type: MS
Within method limits. QIR-GC-00-238.

(QC batch#: 120778)
Test: Fluoride
QC Type: LCS1
Report Summary of positive results, PR68090

<table>
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<tr>
<th>Analyzed</th>
<th>WELL 1A-M</th>
<th>Result</th>
<th>MDL</th>
<th>UNITS</th>
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<td>08/01/00</td>
<td>Arsenic, Total, ICAP/MS</td>
<td>1.5</td>
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<td>UGL</td>
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<td>Barium, Total, ICAP/MS</td>
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<td>Chromium, Total, ICAP/MS</td>
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<td>2.000</td>
<td>UGL</td>
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<td>UGL</td>
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<td>Fluoride</td>
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<td>.050</td>
<td>MGL</td>
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<td>07/20/00</td>
<td>Nitrate-N by IC</td>
<td>4.22</td>
<td>.200</td>
<td>MGL</td>
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</table>
ACKNOWLEDGMENT OF SAMPLES RECEIVED

Pural Water Specialty Company
1955 Vineyard St.
Wailuku, HI 96793
Attn: Earl Ichimura
Phone: 808 242 7299

Customer Code: PURAL-HI
Group#: 68090
Project#: PHASEV
Proj Mgr: Hillary Strayer
Phone: (626) 568-6412

The following samples were received from you on 07/20/00. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Montgomery Watson Laboratories.

<table>
<thead>
<tr>
<th>Sample#</th>
<th>Sample Id</th>
<th>Matrix</th>
<th>Sample Date</th>
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<tr>
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<td>Water</td>
<td>19-jul-2000 09:35:00</td>
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<td>@DIQUAT</td>
<td>@EDB-DBC</td>
<td>@MET-HI</td>
<td>@ML502.2</td>
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<tr>
<td>@NPS3</td>
<td>@PESTSDW</td>
<td>CNDW</td>
<td>ENDOthal F</td>
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<tr>
<td>HG</td>
<td>NO2-N</td>
<td>NO3</td>
<td>TCDD-DW</td>
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Test Acronym Description

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<th>Test Acronym</th>
<th>Description</th>
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<tr>
<td>@DIQUAT</td>
<td>Diquat and Paraquat</td>
</tr>
<tr>
<td>@EDB-DBC</td>
<td>EDB and DBCP by GC-BCD</td>
</tr>
<tr>
<td>@MET-HI</td>
<td>ICPMS Metals</td>
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<td>@ML502.2</td>
<td>Volatile Organic Compounds</td>
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<td>@ML525</td>
<td>525 Semivolatiles by GC/MS</td>
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<tr>
<td>@ML531</td>
<td>Aldicarb</td>
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<td>@NPS3</td>
<td>Herbicides by 515.1</td>
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<td>@PESTSDW</td>
<td>SDWA Pesticides</td>
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<td>Cyanide</td>
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<td>ENDOthal</td>
<td>Endothall</td>
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<td>F</td>
<td>Fluoride</td>
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<td>Glyphosate</td>
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<td>HG</td>
<td>Mercury</td>
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<td>NO2-N</td>
<td>Nitrite, Nitrogen by IC</td>
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<td>NO3</td>
<td>Nitrate-N by IC</td>
</tr>
<tr>
<td>TCDD-DW</td>
<td>2,3,7,8 - TCDD</td>
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</tbody>
</table>
Laboratory Report

for

Pural Water Specialty Company
1955 Vineyard St.

Wailuku, HI 96793

Attention: Earl Ichimura
Fax: 808 244 8878

Complete data.

HDS Hillary Strayer
Project Manager

Report#: 68090
PHASEV

Laboratory certifies that the test results meet all QA/QC requirements unless noted in the Comments section or the Case Narrative. Following the cover page Comments, QC Report, QC Summary, Data Report, totaling 26 page[s].
Omaopio-Esty Well  State Well- #4821-01  Page 3

900  hard bluerock - 915
910
920  medium density basalt  915-965
930
940
950
960
970  hard bluerock  965-1110
980
990
1000
1010
1020
1030
1040
1050
1060
1070
1080
1090
1100
1110
1120  medium density basalt 1110-1170
1130  static water level 1137.3
1140  loose rocks  3.2 ft. head
1150  maximum drawdown = .35 ft.
1160
1170  soft basalt 1170-1185
1180  pahoehoe 1185-1200
1190  very soft. (Water Bearing)
1200
1210
1220
1230

chlorides 190 ppm
900  hard bluerock - 915
910
920  medium density basalt 915-965
930
940
950
960
970  hard bluerock 965-1110
980
990
1000
1010
1020
1030
1040
1050
1060
1070
1080
1090
1100
1110
1120
1130  medium density basalt 1110-1170
1140  loose rocks  level 1137.3
1150  3.2 ft head
1160  maximum drawdown = .35 ft
1170  soft basalt 1170-1185
1180  concrete: Int. 1185
1190  very soft (water bearing)
1200
1210
1220
1230

12 in. borehole to 1200 ft.
Ductile Iron Check Valve at 1000 ft.
20 ft. length of 2 in. stainless column pipe to pump discharge
40 h.p. Grundfos 65 gpm @ 1400 ft. with check valve, intake at 1147 ft.
40 h.p. Franklin subr. motor
480 volt 3 phase amp 53.5
6" scd 40 steel max. amp 62
Solid casing 1150-1170 ft. (corrosion resistant)
Louvered casing 1170-1200 ft.
Total well depth = 1200 ft.
Chlorides 190 ppm
FAX: Transmitting 4 pages, including this one; call 587-0251 with any reception problems.

TO: Mike Robertson  
FROM: Charley Teo  

Date: 12 May 00

Transmitting
Well Completion Report and Pump Test Report forms for
Omaopio-Easty Well (4821-01)
by regular mail.
Copy also to Ivan Nakatsuka and Austin Tsutsumi
FAX: Transmitting 10 pages, including this one; call 587-0251 with any reception problems.

TO: Ivan Nakatsuka

FROM: Charley Ice

Transmitting
- Well Completion Report and
- PumpTest Report
forms for Ōmaopi'o-Easty Well (4821-01)
originals to Wai'anae Drilling by regular mail
and notice by fax.
FAX: Transmitting 2 pages, including this one; call 587-0251 with any reception problems.

FROM: Ivan Nakatsuka
TO: Charley Iee

Date: 12 May 00

Transmitting Well Construction Permit for Onuaopio's Esty
Well (5821-01).

The attachments are normally sent to the applicant,
and in this case, they need to go to someone locally:
- Well Completion Report
- Pump Test Forms

Should these go directly to driller (Wailani) or to you?

Charley,
Please send the attachments to the driller, Wailani Drilling.

However, if it's not too much of a hassle, could I get
a copy - or at least a fax
of any cover letter?
(Fax: 526-1207) Thanks,
Ivan

Return Fax: 587-0219
Return Post: P.O. Box 621, Honolulu 96809
TRANSMITTING WELL CONSTRUCTION PERMIT FOR Omaopio-East Well (#821-01).

The attachments are normally sent to the applicant and in this case, they need to go to someone locally:

- Well Completion Report
- Pump Test Forms

Should these go directly to driller (Wailani) or to you?
Mr. Edward Esty

Dear Mr. Esty:

Pump Installation Permit
Omaopio-Esty Well (Well No. 4821-01)

Enclosed are two (2) originals of your approved Pump Installation Permit for the captioned well(s) that authorize permanent pump installation work for your well(s). As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 11:

Special Conditions

1. If the elevation benchmark needs to be altered, the permittee, well operator, and/or well owner shall ensure that the benchmark is transferred (or the well resurveyed) and documentation of the new benchmark shall be submitted to the Commission within sixty (60) days after the pump is installed.

The permittee, well operator, and/or well owner are responsible for all conditions of the permit. This includes ensuring that the pump installation contractor submits a completed Part II of the Well Completion Report form (enclosed) within sixty (60) days after the pump installation work is completed. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign and have the contractor sign both permit originals and return one for our files. A copy of the Well Completion Report (Part II) and a copy of your water use report form are enclosed for your use.

IMPORTANT - Pump installation shall not commence until a fully signed permit is returned to the Commission. Except for the monthly water use report form, please provide copies of all the information in this packet to your pump installation contractor.

Finally, this letter is notice that we have accepted your Well Completion Report - Part I as complete.

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

Aloha,

TIMOTHY E. JOHNS
Chairperson

Enclosure
c: Wailani Drilling Company
Austin Tsutsumi & Associates
Phil Christopher Realty
In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the pump installation for Omaopio-Esty Well (Well No. 4821-01) at, Lower Omaopio, Makawao, Maui, TMK 2-3-3:171, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson to the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work covered by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The pump installation permit shall be for installation of a 65 gpm capacity, or less, pump in the well.

3. The permittee, well operator, and/or well owner shall provide and maintain an approved meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on an annual basis, on forms provided by the Chairperson (attached).

4. 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 a well shall not constitute a determination of correlative water rights. The permittee, well operator, and/or well owner are 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.

5. The permittee, well operator, and/or well owner shall complete and submit as-built drawings and Part II - (Permanent) Pump Installation Report of the Well Completion Report (attached) to the Chairperson within sixty (60) days after completion of work.

6. The permittee, well operator, and/or well owner shall comply with all applicable laws, rules, and ordinances, and non-compliance may be grounds for revocation of this permit.

7. The pump installation permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

8. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the pump installation permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee, well operator, and/or well owner notice of the proposed action and an opportunity to be heard.

9. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee, well operator, and/or well owner must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

10. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.

11. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: May 2, 2000
Expiration Date: May 2, 2002

TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

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 and understand that I shall not commence work until I and the pump installer have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: [Signature] Date: 5/10/2000
Printed Name: Edward T. Esty Jr Firm or Title: Owner

Installer's Signature: [Signature] Date: 5/15/2000
Printed Name: Michael Robertson C-57, C-57a, or A License #: 2011

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachments:
- USGS
  - Department of Health/ Safe Drinking Water & Wastewater Branch
  - Maui Department of Water Supply
  - Austin Tatsumii & Associates
  - Phil Christopher Realty
PUMP INSTALLATION PERMIT
Omaopio-Esty Well, Well No. 4821-01

In accordance with Department of Land and Natural Resources, Commission on Water Resource Management’s Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the pump installation for Omaopio-Esty Well (Well No. 4821-01) at, Lower Omaopio, Makawao, Maui, TMK 2-3-3-171, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson to the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work covered by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The pump installation permit shall be for installation of a 65 gpm capacity, or less, pump in the well.

3. The permittee, well operator, and/or well owner shall provide and maintain an approved meter or other appropriate means for measuring and reporting withdrawals and water levels, and appropriate devices or means for measuring chlorides and temperature. These data shall be measured monthly and reported to the Commission on an annual basis, on forms provided by the Chairperson (attached).

4. 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 a well shall not constitute a determination of correlative water rights. The permittee, well operator, and/or well owner are 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.

5. The permittee, well operator, and/or well owner shall complete and submit as-built drawings and Part II - (Permanent) Pump Installation Report of the Well Completion Report (attached) to the Chairperson within sixty (60) days after completion of work.

6. The permittee, well operator, and/or well owner shall comply with all applicable laws, rules, and ordinances, and non-compliance may be grounds for revocation of this permit.

7. The pump installation permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

8. The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the pump installation permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee, well operator, and/or well owner notice of the proposed action and an opportunity to be heard.

9. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee, well operator, and/or well owner must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

10. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.

11. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: May 2, 2000
Expiration Date: May 2, 2002

TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

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 and understand that I shall not commence work until I and the pump installer have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee’s Signature: __________________________ Date: ____________

Printed Name: ___________________________ Firm or Title: ___________________________

Installer’s Signature: __________________________ C-57, C-57a, or A License #: __________________________ Date: ____________

Printed Name: ___________________________ Firm or Title: ___________________________

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachments c:
USGS
Department of Health/ Safe Drinking Water & Wastewater Branch
Maul Department of Water Supply
Austin Taitumis & Associates
Phil Christopher Realty
FROM: **Linnel**

**DATE:** 4/2000

**TO:**
- BAUER, G.
- CHING, F.
- FUJII, N.
- HARDY, R.
- HIGA, D.
- HIRANO, E.
- IMATA, R.
- JINNAI, R.
- KUNIMURA, I.

**INIT.**

**TO:**
- LUM, A.
- NAKAMA, L.
- NAKANO, D.
- NISHIOKA, L.
- OHYE, M.
- SAKODA, E.
- SUBIA, S.
- SWANSON, S.
- UYENO, D.
- YODA, K.

**INIT.**

**FOR:**
- Approval
- Signature
- Information

**PLEASE:**
- See Me
- Review & Comment
- Take Action
- Type Draft
- Type Final
- File
- Xerox ____ copies

---

*If elevation is only outstanding issue, then we issue PIP.*

**cc:** Phil 888 Keller 76353
Christopher Reilly
Audra Subram 501 Sawyer St. Honolulu 96817
1. **Pump Tests Check**

   Glenn Bauy (initial)

   **Step-Drawdown Test:**
   - acceptable
   - followed WCPI Stds
   - analysis attached
   - proposed pump cap o.k.
   - [ ] Yes
   - [ ] No
   - If no, describe deficiency

   **Aquifer Pump Test:**
   - acceptable
   - followed WCPI Stds
   - T & S analysis attached
   - [ ] Yes
   - [ ] No
   - [ ]

   **Well Interference:**
   - estimated Steady-State drawdown at 1-mile radius is
   - analysis attached
   - [ ] Yes
   - [ ] No

   **Stream Surface Water Impacted:**
   - [ ] Yes
   - [ ] No

   If yes, identify most probable stream

2. **Construction Check**

   Mitch Ohye (initial)

   **data complete**
   - followed WCPI Stds
   - wellphys.dbf updated
   - wellapic.dbf updated
   - [ ] Yes
   - [ ] No

   If no, describe deficiency

---

*24 Feb 00 - Mike informed me that, despite the application, the functional pump capacity is 60-65 gpm, and the end use total is closer to 30,000 gpd. - thus obviating the S-00 test. He believes he has better numbers for measurements, and will call surveyor for documentation...*
Mr. Charley Ice
Commission on Water Resource Management
State of Hawaii
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ice:

Subject: Pump Installation Permit for Oma’opio-Esty Well (Well No. 4821-01)

As a follow-up to our phone conversation, this is to confirm that the pump currently installed in the subject well is expected to pump water to the control tank at a rate of less than 70 gallons per minute. This is based on construction of the project in accordance with our February 15, 2000 design of the system with the control tank located at a separate site that is approximately 120 feet higher than the well site.

This is to also confirm that the topographic survey at the well site was conducted under the supervision of Mr. Erik Kaneshiro, L.P.L.S, of our firm. Mr. Kaneshiro’s stamp is included below as evidence of his registration in the State of Hawaii.

It is our understanding that with the submittal of this letter, all requirements for issuance of a pump installation permit by the Commission on Water Resource Management have been met. Please feel free to call me at 533-3646 should you have any questions.

Sincerely,

AUSTIN, TSUTSUMI & ASSOCIATES, INC.

By

IVAN K. NAKATSUKA, P.E.
Chief Environmental Engineer

cc: Phil Christopher

#M-99-559
April 7, 2000
Well State Well # 4821-01 Elevation 1140.5 ft above m.s.l.

- 3x4x10" concrete slab
- red clay 0-25
- bluerock 30-55
- red clay 55-65
- hard bluerock 110-138
- weathered bluerock 169-190 med. density
- hard bluerock from 215-255
- hard bluerock 258-295
- medium density bluerock 295-367
- Cave from 367-372 lost return
- weathered bluerock 372-425
- hard bluerock 430-475

- 40 h.p. control box in pumphouse
- 2 in. Water Meter
- 1-1/2" flex conduit
- cement grouted +10' to -535 ft.
- 12 in. borehole to -1200 ft.
- #2 layflat submersible pump cable
- sched. 40 pvc sounding tube (1")
- 2 in ductile iron check valve set at 330 ft.

Note: not drawn to scale

Continued on page 2
**Wailani Dolling Company**

Mike Robertson  
655 Kulike Road  
Haiku, Maui, Hawaii 96708

Ph. 808-572-2673  
Fax 572-0925  
Cellular 283-8481

Omaopio-Esty Well  
State Well #4821-01  
Page 3

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**Diagram Details:**

- **900:** Hard bluerock - 915
- **910:** Medium density basalt 915-985
- **920:** Hard bluerock 965-1110
- **930:** Ductile iron check valve at 1000 ft.
- **940:** Very dense bluerock
- **950:** 20 ft. length of 2 in. stainless column pipe to pump discharge
- **960:** 40 h.p. Grundfos 36 gpm @ 1400 ft.
- **970:** With check valve, intake at 1147 ft.
- **980:** 40 h.p. Franklin subtot motor
- **990:** 450 volt 3 phase
- **1000:** 5" scld 40 steel
- **1010:** Coupled casing 1150-1170 ft.
- **1020:** Corrosion resistant
- **1030:** Solid casing 1170-1200 ft.

**Chlorides:** 190 ppm

*Note: not drawn to scale*
To: Charlie Ice  
For: Water Resource Commission  

Dear Charlie:

This is to provide written notice for starting work on the following wells:

Napili Park II  5000-02  
Kahana-Gartnar  
Ohe'o-Esty  
#4821-01 on 10/18/99

Please fax a response to me to confirm.

Thank You,

Mike Robertson  
dba Wailani Drilling Inc.

Certified By The National Groundwater Association
Mr. Edward Esty

Dear Mr. Esty:

Well Construction Permit
Omaopio-Esty Well (Well No. 4821-01)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s) that authorize well construction activities but excludes installation work for your permanent pump. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 13:

**Special Conditions**

1. Attached for your information is a copy of the Department of Health's (DOH) review comments. Please note DOH's requirements related to discharge of effluent from well drilling and testing activities.

2. Material designations shall conform to Section 2.4 of the Hawaii Well Construction and Pump Installation Standards (HWCPIS).

This permit does not authorize work for your permanent pump installation. Approval and issuance of your pump installation permit is contingent upon completed application and information provided to and accepted by Commission staff as required in the Well Construction & Pump Installation Standards (1/23/97) and any special conditions performed under this permit. However, in accordance with the Commission's April 15, 1998 Declaratory Ruling No. DEC-ADM98-G5, which states that:

"Permanent pump installation for capacities between 0-70 gpm and where the proposed use is for private individual needs in non-ground-water management areas may be allowed prior to the final pump installation permit issuance. When required as a condition of the well construction permit, subsequent pumping tests shall validate the acceptability of the permanent pump. The permanent pump installed prior to final pump installation permit issuance is subject to removal if the testing shows that a smaller pump is required to reduce the potential of affecting neighboring wells and localized upconing at the applicant's well."
a permanent pump may be installed prior to the permanent pump installation permit issuance. If you qualify and wish to take advantage of this ruling, please include a written request to install the permanent pump prior to final pump installation permit issuance when you return to us your validated well construction permit.

To validate your permit, please sign and have the contractor sign both permit originals and return one for our files. Also, copies of the aquifer pump test worksheet and the well completion report form are enclosed for your use.

IMPORTANT - Drilling work may not proceed without a validated permit returned to the Commission. Please provide all the information in this packet to your well drilling contractor. The permittee is responsible for all conditions of the permit. This includes ensuring that the well construction contractor, or other party who constructs the well(s), submits a completed Part I of the Well Completion Report form (enclosed) within sixty (60) days after the well construction work is completed. Be advised that you may be subject to fines of up to $1000 per day for any violations of your permit conditions starting from the permit approval date.

If you have any questions, please call the Commission staff at (808) 587-0251.

Aloha,

TIMOTHY E. JOHNS
Chairperson

Enclosures
In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Omaopio-Esty Well (Well No. 4821-01) at Omaopio, Makawao, Maui, TMK 2-3-3-171, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 821, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect drilling activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum one-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels. The permittee shall coordinate with the Chairperson and conduct a pumping test in accordance with the Standards (a pump testing worksheet is attached). The permittee shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson.

3. In basal ground water, the depth of the well may not exceed one-fourth (1/4) of the theoretical thickness (41 times initial head) of the basal groundwater unless otherwise authorized by the Chairperson.

4. The permittee shall incorporate mitigation measures to prevent construction debris from entering the aquatic environment, to schedule work to avoid periods of high rainfall, and to revegetate any cleared areas as soon as possible.

5. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department's Historic Preservation Division (692-8015) immediately.

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

7. The following shall be submitted to the Chairperson within sixty (60) days after completion of work:
   b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawing of the well.
   d. Plot plan and map showing the exact location of the well.
   e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other data.

8. The permittee shall comply with all applicable laws, rules, and ordinances; non-compliance may be grounds for revocation of this permit.

9. The well construction permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (January 23, 1997; HWCPIS). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

10. The permit may be revoked by the Commission if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

11. If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.

12. The permittee, its successors, and assigns shall indemnify, defend, and hold the State of Hawaii harmless from and against any loss, liability, claim, or demand for property damage, personal injury, or death arising out of any act or omission of the applicant, assigns, officers, employees, contractors, and agents under this permit or relating to or connected with the granting of this permit.

13. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: August 26, 1999
Expiration Date: August 26, 2001

TIMOTHY E. JOHNS, Chairperson
Commission on Water Resource Management

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 and understand that I do not hold a valid permit until I and the driller have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: ____________________________ Date: ____________________________
Printed Name: ____________________________ Firm or Title: ____________________________
Driller's Signature: ____________________________ C-57 License #: ____________________________ Date: ____________________________
Printed Name: ____________________________ Firm or Title: ____________________________

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachment:

USGS
Department of Health/ Safe Drinking Water, Wastewater, and Clean Water Branches
Maui Department of Water Supply
In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Omaopio-Esty Well (Well No. 4821-01) at Omaopio, Makawao, Maui, TMK 2-3-3-1:171, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions:

1. The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences and staff shall be allowed to inspect installation activities in accordance with §13-168-15, Hawaii Administrative Rules.

2. The well construction permit shall be for construction and testing of the well only. A minimum one-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels. The permittee shall coordinate with the Chairperson and conduct a pumping test in accordance with the Standards (a pump testing worksheet is attached). The permittee shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson.

3. In basal ground water, the depth of the well may not exceed one-fourth (1/4) of the theoretical thickness (41 times initial head) of the basal ground water unless otherwise authorized by the Chairperson.

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5. In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department's Historic Preservation Division (692-6015) immediately.

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

7. The following shall be submitted to the Chairperson within sixty (60) days after completion of work:
   b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor.
   c. As-built sectional drawing of the well.
   d. Foundation plan and map showing the exact location of the well.
   e. Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other data.

8. The permittee shall comply with all applicable laws, rules, and ordinances; non-compliance may be grounds for revocation of this permit.

9. The well construction permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (January 23, 1997; HWCPIS). If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

10. The permit may be revoked by the Commission if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.

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13. Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: August 26, 1999
Expiration Date: August 28, 2001

TIMOTHY E. JOHNSTON, Chairperson
Commission on Water Resource Management

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 and understand that I do not hold a valid permit until I and the driller have signed, dated, and returned the permit to the Commission. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $1000 per day starting from the permit date of approval.

Permittee's Signature: Edward T. Esty
Printed Name: Edward T. Esty

Driller's Signature: Mike Robertson
Printed Name: Mike Robertson

C-57 License #: 26115
Date: 8/16/99

Please sign both copies of this permit, return one to the Chairperson, and retain the other for your records.

Attachment

USGS
Department of Health's Safe Drinking Water, Wastewater, and Clean Water Branches
Maui Department of Water Supply
**SECTION 1: WELL LOCATION INFORMATION**

<table>
<thead>
<tr>
<th>Island</th>
<th>Maui</th>
<th>Proposed Use</th>
<th>Irrigation</th>
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<td>Aquifer System</td>
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<td>Proposed Withdrawal</td>
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<td>Aquifer Sector</td>
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<td>System Sustainable Yield</td>
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**SECTION 2: WELL SECTION DATA** *(enter data in grey cells only)*

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<th>Elevation at top of casing</th>
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<tr>
<td>Ground Elevation</td>
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<tr>
<td>Cement Grout</td>
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</tr>
<tr>
<td>Rock Packing</td>
<td>ft.</td>
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<td>Hole Diameter</td>
<td>ft.</td>
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<td>Total Depth</td>
<td>ft.</td>
</tr>
<tr>
<td>Estimated Head</td>
<td>ft., m.s.l.</td>
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<td>Calculated Aquifer Thickness</td>
<td>205 ft.</td>
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<td>County Water Supply (Y/N ?)</td>
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<table>
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<td>Length</td>
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<td>Diameter</td>
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<tr>
<td>Wall Thickness</td>
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<table>
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<tbody>
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<td>Length</td>
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<tr>
<td>Diameter</td>
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</table>

**SECTION 3: CHECKLIST** *(values to check are shaded)*

Well Depth

- Theoretical Thickness of Aquifer: 205 ft.
- 1/4 Aquifer Thickness: 51.25 ft.
- Depth of Well below Sea Level: 50 ft. okay *(refer to HWCPIS Section 2.2)*

Well Casing

- Minimum Wall Thickness
  - Material: County or Non-County
  - County: non-county
  - Minimum Thickness per standards: #N/A in.
  - Wall Thickness Provided: 0.250 in. #N/A *(refer to HWCPIS Section 2.4 c)*

- Minimum Length of Solid Casing
  - 90% of ground to top of aquifer: 985.5 ft.
  - Length of solid casing Provided: 1130 ft. okay *(refer to HWCPIS Section 2.4 d)*

- Casing Material
  - #4444

- Annular Space
  - If the cell above reads #N/A, reference HWCPIS

- Depth of Grouting
  - Calculated Depth of Grouting: 500 ft.
  - Depth of Grouting provided: 770 ft. okay *(refer to HWCPIS Section 2.6 c)*

- Thickness of Annular Space: 3 in. okay *(refer to HWCPIS Section 2.6 d)*
TO: Honorable Bruce S. Anderson, Director
Department of Health
Attention: Dennis Tulang, Wastewater Branch
William Wong, Safe Drinking Water Branch

FROM: Timothy E. Johns, Chairperson
Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
Ôma'opio-Esty Well (Well No. 4821-01)

Transmitted for your review and comment is a copy of the captioned well application.

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by July 30, 1999.

Please find a map, attached, to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Charley Ice of the Commission staff at 587-0251.

RESPONSE:

[ ] This well qualifies as a source which will serve as a source of potable water to a public water system (serving 25 or more people at least 60 days per year or has 15 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, Rules Relating to Potable Water Systems, §11-20-29.

[ ] This well does not qualify as a source serving a public water system (serves less than 25 people or more people at least 60 days per year or 15 service connections) and if the well water is used for drinking, the private owner should test for bacteriological and chemical presence before initiating such use and routinely monitor the water quality thereafter. However, if future planned use from this source increases to meet the public water system definition then Director of Health approval is required prior to implementation.

[ ] If the well is used to supply both potable and non-potable purposes in a single system, the user shall eliminate cross-connections and backflow connections by physically separating potable and non-potable systems by an air gap or an approved backflow preventer, and by clearly labeling all non-potable spigots with warning signs to prevent inadvertent consumption of non-potable water. Backflow prevention devices should be routinely inspected and tested.

[ ] It does not appear that this well will be used for consumptive purposes and is not subject to Safe Drinking Water Regulations.

[ ] For the applicant's information, a source of possible wastewater contamination is not located near the proposed well site (information attached).

[ ] Other relevant DOH rules/regulations, information, or recommendations are attached.

No comments/objections

Contact Person: Lori N. Kajiwara

Signed: Lori N. Kajiwara
TO: Honorable Bruce S. Anderson, Director
Department of Health
Attention: Dennis Tulang, Wastewater Branch
William Wong, Safe Drinking Water Branch

FROM: Timothy E. Johns, Chairperson
Commission on Water Resource Management

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Other relevant DOH rules/regulations, information, or recommendations are attached.

No comments/objections

Contact Person: Bill Wong
Phone: 586-4256

Signed: Chauncey Low for W. Wong

Date: 7/30/1999
The Department of Health, Clean Water Branch has the following comments:

1. For Well-Drilling Activities

   Any discharge to State waters of treated process wastewater effluent associated with well drilling activities is regulated by Hawaii Administrative Rules, Chapter 11-55, Appendix I, effective September 22, 1997. Treated process wastewater effluent covered by this general permit includes well drilling slurries, lubricating fluids wastewaters, and well purge wastewaters. This general permit does not cover well pump testing. The applicable Notice of Intent Forms and filing fee shall be submitted at least thirty (30) days before the start of discharge to the Department of Health, Clean Water Branch at 919 Ala Moana Boulevard, Room 301, Honolulu, Hawaii 96814-4920 or P.O. Box 3378, Honolulu, Hawaii 96801-3378. Inquiries may be directed to the Clean Water Branch at (808) 586-4309 or by fax at (808) 586-4352.

2. For Well Pump Testing

   The discharger shall take all measures necessary to prevent the discharge of pollutants from entering state waters. Such measures shall include, if necessary, containment of the initial discharge until the discharge is essentially free of pollutants. If the discharge is entering a stream or river bed, best management practices shall be implemented to prevent the discharge from disturbing the clarity of the receiving water. If the discharge is entering a storm drain, the discharger must obtain written permission from the owner of that storm drain prior to discharge. Furthermore, best management practices shall be implemented to prevent the discharge from collecting sediments and other pollutants prior to entering the storm drain.

JS/cr
Mr. Edward Esty

Dear Mr. Esty:

Well Construction/Pump Installation Permit Application for Well No. 4821-01

We acknowledge receipt, on July 19, 1999, of your completed well construction/pump installation permit application for the Ōma’opio-Esty Well (Well No. 4821-01). You can expect your application to be processed within ninety (90) days from this date.

For your information, the process of constructing a well is normally regulated and permitted in two (2) steps. First, a well construction permit is issued for drilling and testing purposes only. Based upon information provided by you through a Well Completion Report Part 1 (Well Construction), a pump installation permit may then be issued to authorize pump work. If a pump is installed then a Well Completion Report Part 2 (Pump Installation) is required.

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

Sincerely,

LINNEL T. NISHIOKA
Deputy Director

Cc: Wailani Drilling Company
TO:   Honorable Bruce S. Anderson, Director
      Department of Health
      Attention: Dennis Tulang, Wastewater Branch
      William Wong, Safe Drinking Water Branch

FROM:  Timothy E. Johns, Chairperson
      Commission on Water Resource Management

SUBJECT: Well Construction/Pump Installation Permit Application
         Oma'opio-Esty Well (Well No. 4821-01)

Transmitted for your review and comment is a copy of the captioned well application.

We would appreciate your comments on the captioned application for any conflicts or inconsistencies with the programs, plans, and objectives specific to your department. Please respond by returning this cover memo form by July 30, 1999.

Please find a map, attached, to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Charley Ice of the Commission staff at 587-0251.

RESPONSE:

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[ ] Other relevant DOH rules/regulations, information, or recommendations are attached.

[ ] No comments/objections

Contact Person: ___________________________ Phone: ___________________________

Signed: ___________________________ Date: ___________________________
### Document: DePARTMENT OF LAND AND NATURAL RESOURCES

**UAC OR ATTACHED WORKSHEET**

**DATE:** 7/21/99

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**REMARKS:**
- **LINE (1)** Well No. 5840-03 (WCPA/PIPA)
- **LINE (2)** Well No. 4821-01 (WCPA/PIPA)
- **LINE (3)**

---

**PAY TO THE ORDER OF:**

**FIRST HAWAIIAN BANK**

**DATE:** 6/30/99

**PAY TO THE ORDER OF:**

**AHA IKI ASSOCIATES, LLC**

**DATE:** 25-80/440

**MEMO:** Permit Application Fee

**DATE:** 04/04/00804: 04 1608516721 0389
State of Hawaii
COMMISSION ON WATER RES
Department of Land and Natur

APPLICATION FOR F
X Well Construction Pump

Instructions: Please print in ink or type and send completed application with attach.

1. APPLICANT: (circle primary contact a, b, or e) Primary Fax
(a) WELL OWNER
(b) 7
Firm:
Contact Person: Edward Esty
Phone: 
Address:
(c) CONTRACTOR
Firm Name: Wailani Drilling Company
Phone: 572-2673
Contact Person: Mike Robertson
Address: 655 Kulike Rd. Haiku, Maui, Hawaii, 96708

2. WELL LOCATION/NAME:
Omaopio Rd., Maui HI
Tax Map Key 2-3-3-171

3. (a) PROPOSED WORK
X Drill New Well
Deepen
Modify Existing Well
Install New Pump
Redrill
Modify Pump
* Be sure to complete and submit well abandonment report upon completion of work.
(b) WELL TYPE:
Dug
Bored
Driven
X Dried
Radial
Is this well a part of a battery of wells? Yes X No
(Briefly describe and fill in the diagram on the back of this form.)

4. PROPOSED PUMP INFORMATION:
Rated Pump Capacity: 150 gallons per minute

5. PROPOSED USE:
Municipal (including hotels, stores, etc.) X Military
X Domestic (individual, noncommercial water sys.) Industrial
X Irrigation (crop) Landscape Other (explain)

6. (a) PROPOSED AMOUNT OF WITHDRAWAL: 110,000 gallons per day
(b) METHOD OF FLOW MEASUREMENT:
X Flow-meter Open-pipe Orifice Plate Weir

7. PENDING ACTIONS: CDUA SMA EIS EA X NONE Other(explain)
Completion Date: N.A.

REMARKS/EXPLANATIONS:
4/90 (land grant after 1960): 03 No - 760
Signature: Edward Esty

I understand that approval of this application attaches the following standard conditions: 1) the proposed work is to be completed within two (2) years of the approval date; 2) the contractor shall submit to the Commission a well completion/abandonment report within thirty (30) days after the completion date of the permitted work; 3) monthly water use data shall be submitted to the Commission; 4) such approval shall not constitute a determination of correlative water rights and shall not guarantee the pump capacity or future use up to the permitted pump capacity.

For Official Use Only:
Date Received:
Date Accepted:
Field Checked By:
Date:
Latitude:
Aquifer System Name:
State Well No.:
11/29/95 VCW Form
9. PROPOSED WELL SECTION

Elevation at top of casing 1101 ft., msl.

Cement Grout: 770 ft.

Hole Diameter: 12 in.

Rock Packing N.A. ft.

Total Depth 1150 ft

Ground Elevation: 1100 ft., msl

Solid Casing:
Length 1130 ft.
Diameter 6 in. Wall thickness .25 Material steel

Casing: X Perforated Screen
Diameter 6 in.
Total Depth 20 ft.
Material steel
Length 20 ft.
Wall thickness .25
¾ in. Openings full flow louver

Open Hole 0 ft.

*Approximate elevation at time of filing application. Ground elevation above mean sea level (msl) by a surveyor licensed by the State must be submitted at start of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.
Proposed Well Sites
Mr. Edward Esty

Dear Mr. Esty:

Completion of Permitting
Omaopio-Esty Well (Well No. 4821-01)

On May 18, 2000, we received a fully signed copy of the Pump Installation Permit and a fully signed copy of the Well Completion Report Part 2 (Pump Installation). Via this letter, we accept your Well Completion Report Part 2 and the permitting process is complete. Please remember to record monthly water use and report it to the Commission on an annual basis on the forms provided to you earlier.

If you have any questions, please call Charley Ice at 587-0251 or toll-free at 984-2400, extension 70251.

Sincerely,

W. Ray Ferdy

Linnel T. Nishioka
Deputy Director

cc: Wailani Drilling Company
    Austin Tsutsumi & Associates
    Phil Christopher Realty