WELL CONSTRUCTION PERMIT TO ABANDON/SEAL

EP 31 & 32 Makakilo GC Well, Well No. 1904-01

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 abandonment/sealing of EP 31 & 32 Makakilo GC Well (Well No. 1904-01), Oahu, TMK 9-1-16:124, subject to the Hawaii Well Construction & Pump Installation Standards (HWCPIS – February 2004) which include but are not limited to the following conditions:

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

2. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.

3. The well construction permit application is incorporated into this permit by reference and is subject to the HWCPIS. If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

4. The Well Abandonment Report form shall be submitted to the Commission on Water Resource Management within sixty (60) days after completion of the work. Please contact staff or visit our website at www.state.hi.us/dlnr/cwrm for the current form.

5. The permittee shall comply with all applicable laws, rules, and ordinances.

6. The sealing shall be completed within two (2) years.

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

Date of Approval: May 25, 2007
Expiration Date: None

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 have signed, dated, and returned the permit to the Commission. I understand that this permit is not to be transferred to any other entity. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $5,000 per day starting from the permit date of approval.

Contractor’s Signature: ____________________________ 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:
c: Well operator and landowner
USGS
Honolulu Board of Water Supply
Ref: 1904-01.wap

Mr. Leonard Leong
Royal Contracting Co., Ltd.
677 Ahua St.
Honolulu, HI 96819

Dear Mr. Leong:

Well Abandonment Permit
EP 31 & 32 Makakilo GC Well (Well No. 1904-01)

Enclosed are two (2) copies of your approved Well Abandonment Permit for the captioned well(s) which authorizes well abandonment/sealing activities. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 7:

**Special Conditions**

1. [None]

To validate your permit, please sign both permit originals and return one for our files.

**IMPORTANT** - The contractor is responsible for all conditions of the permit. This includes ensuring that the submission of a completed Well Abandonment 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 $5000 per day for any violations of your permit conditions.

If you have any questions, please call Lenore Nakama of the Commission staff at 587-02180218 or toll-free at [Hawaii], [Kauai], [Maui], or [Lanai & Molokai] extension 70218.

Sincerely,

Allan A. Smith
Interim Chairperson

Enclosures

c: D.R. Horton-Schuler Homes LLC
USGS
Honolulu Board of Water Supply
WELL CONSTRUCTION PERMIT TO ABANDON/SEAL

EP 31 & 32 Makakilo GC Well, Well No. 1904-01

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 abandonment/sealing of EP 31 & 32 Makakilo GC Well (Well No. 1904-01), Oahu, TMK 9-1-16:124, subject to the Hawaii Well Construction & Pump Installation Standards (HWCPIS – February 2004) which include but are not limited to the following conditions:

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

2. This permit shall be prominently displayed, or made available, at the site of construction work until work is completed.

3. The well construction permit application is incorporated into this permit by reference and is subject to the HWCPIS. If the HWCPIS are not followed and as a consequence water is wasted or contaminated, a lien on the property may result.

4. The Well Abandonment Report form shall be submitted to the Commission on Water Resource Management within sixty (60) days after completion of the work. Please contact staff or visit our website at www.state.hi.us/dlnr/cwrm for the current form.

5. The permittee shall comply with all applicable laws, rules, and ordinances.

6. The sealing shall be completed within two (2) years.

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

Date of Approval: May 25, 2007
Expiration Date: None

ALLAN A. SMITH, Interim 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 have signed, dated, and returned the permit to the Commission. I understand that this permit is not to be transferred to any other entity. I also understand that non-compliance with any permit condition may be grounds for revocation and fines of up to $5,000 per day starting from the permit date of approval.

Contractor's Signature: ________________________ License #: CT-2110 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

C: Well operator and landowner
   USGS
   Honolulu Board of Water Supply
April 25, 2007

TO: Russell Tsuji, Administrator  
Land Division

FROM: W. Roy Hardy, Hydrologic Program Manager  
Commission on Water Resource Management

SUBJECT: Well Abandonment Permit Application  
EP 31 & 32 Makakilo GC Well (Well No. 1904-01) TMK 9-1-16:124

Transmitted for your review and comment is a copy of the captioned Well Abandonment permit application.

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. Please respond by returning this cover memo form by May 25, 2007. If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Lenore Nakama of the Commission staff at [REDACTED].

RESPONSE:

[ ] A water lease/permit is required of this applicant and an application for such will be requested by our division.

X A water lease/permit is not required of this applicant.

[ ] A water lease/permit has been obtained by the applicant through lease no. [REDACTED].

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

[ ] No objections

X Other comments: Original source of private title was issued prior to statehood.

Contact Person: Gary Martin  
Phone: [REDACTED]

Signed: Gary Martin  
Date: May 25, 2007
COMMISSION ON WATER RESOURCE MANAGEMENT  
ROUTE SLIP FOR NEW APPLICATIONS

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PLEASE:
1. Review & Comment
2. Take Action
3. Type Final, label file folder, update People.db
4. File
5. Xerox copies

WELL NUMBER: 904-01
WELL NAME: EP 31 & 32 Makakilo GC

ATTACHMENTS FOR APPLICATION PROCESSING - Both applicant & staff generated
1. TRANS. LETTER
2. PERMIT PROCESS TABLE
3. CWRM MAP
4. APPL. FORM (11 COPIES)
5. USGS MAPS (11 COPIES)
6. TAX MAPS (11 COPIES)
7. PARCEL OWNER VERIF.
8. CONTRACTOR VERIF.
9. ALL INFO FILLED IN
10. BACKGROUND CHECK
11. 525 FEE DEPOSIT SLIP
12. DHS/CDU/SMA pre-screen

MLS PRINTOUT
DCCA LICENSE SCREEN PRINTOUT
DUE WELL SEALING

FOLDER:
□ MADE NEW FILE FOLDER, ATTACHED
□ FILE FOLDER ALREADY MADE, IN FILE CABINET

INCOMPLETE ACTION DATES:
DATE | ACTION
--- | ---
| regular contractor? |
| Proposed use? |

Handwritten note:
3.29 left msg for Tom Young
Send a modify? .
John said to do sealing permit.
April 25, 2007

Mr. Leonard Leong
Royal Contracting Co., Ltd.
677 Ahua St.
Honolulu, HI 96819

Dear Mr. Leong:

Well Abandonment Permit Application for Well No. 1904-01

We acknowledge receipt, on April 4, 2007, of your completed Well Abandonment permit application and filing fee for the EP 31 & 32 Makakilo GC Well (Well No. 1904-01). You can expect your application to be processed within ninety (90) days from this date.

If you have any questions about your permit application, please contact Lenore Nakama of the Commission staff at [redacted]

Sincerely,

W. ROY HARDY
Hydrologic Program Manager

LN:ss

c: Vanessa Yanagawa, D.R. Horton -Schuler Homes LLC
April 25, 2007

TO: Russell Tsuji, Administrator
    Land Division

FROM: W. Roy Hardy, Hydrologic Program Manager
      Commission on Water Resource Management

SUBJECT: Well Abandonment Permit Application
          EP 31 & 32 Makakilo GC Well (Well No. 1904-01) TMK 9-1-16:124

Transmitted for your review and comment is a copy of the captioned Well Abandonment permit application.

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. **Please respond by returning this cover memo form by May 25, 2007.** If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application, request additional information, or request additional review time, please contact Lenore Nakama of the Commission staff at ________

LN: ss
Attachment(s)

RESPONSE:

[ ] A water lease/permit is required of this applicant and an application for such will be requested by our division.

[ ] A water lease/permit is **not** required of this applicant.

[ ] A water lease/permit has been obtained by the applicant through lease no. ___________.

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

[ ] No objections

[ ] Other comments:

Contact Person: ___________________________ Phone: ____________

Signed: ___________________________ Date: ____________
April 25, 2007

TO: Melanie Chinen, Administrator
Historic Preservation

FROM: W. Roy Hardy, Hydrologic Program Manager
Commission on Water Resource Management

SUBJECT: Well Abandonment Permit Application
EP 31 & 32 Makakilo GC Well (Well No. 1904-01) TMK: 9-1-16:124

Transmitted for your review and comment is a copy of the captioned Well Abandonment permit application.

We would appreciate your comments on the captioned application with regard to the programs, plans, and objectives specific to your division. Please respond by returning this cover memo form by May 25, 2007. If we do not receive comments or a request for additional review time by this date, we will assume you have no comments.

Please find the attached maps to locate the proposed well. If you have any questions about this permit application or request additional review time, please contact Lenore Nakama of the Commission staff at [Contact Information]. If you require additional information regarding specific information that can be provided by the applicant, please contact the applicant directly at the contact information provided on the application form.

LN:ss
Attachment(s)

RESPONSE:

[ ] This is a [ ] public (county or state) project [ ] private project and [ ] will [ ] may disturb historic sites.

[ ] We concur that the work described under this permit will not disturb historic sites.

[ ] We do not concur that the work described under this permit will not disturb historic sites. We require the following for our concurrence:

Contact Person: ___________________________ Phone: ________________

Signed: ___________________________ Date: ____________________
April 25, 2007

Mr. Clifford Lum, Manager and Chief Engineer
Board of Water Supply
City and County of Honolulu
630 South Beretania Street
Honolulu, HI 96843

Dear Mr. Lum:

Well Abandonment Permit Application
EP 31 & 32 Makakilo GC Well (Well No. 1904-01)

Transmitted for your review and comment is a copy of the captioned Well Abandonment permit application. If you have any comments on this application, please submit them by May 25, 2007. If we do not receive comments we will assume you have no comments.

If you have any questions about this permit application, please contact Lenore Nakama of the Commission staff at [Redacted].

Sincerely,

W. ROY HARDY
Hydrologic Program Manager

LN:ss
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This information has been supplied by third parties and has not been independently verified by Hawaii Information Service and is, therefore, not guaranteed.
TO:  Ms. Lenore Nakama  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

SUBJECT:  State Well No. 1904-01

JOB NUMBER/REFERENCE NUMBER:  2006-33-8100

DATE:  February 28, 2007

VIA:  □ Mail  □ Courier  □ Messenger  □ Will Call

WE ARE SENDING YOU:

□ Reports
□ Prints
□ Tracings
□ Shop Drawings
□ Specifications
□ Electronic Files
□ Change Order
□ Other: Application for a Well Construction/Pump Installation Permit

COPIES:  DATE:  DESCRIPTION:
10  February 7, 2007  Application for a Well Construction/Pump Installation Permit
1  February 28, 2007  Check in the amount of $25.00
10  January 2007  Additional Remarks, explanations.
10  January 2007  Figure #1 Project Location Map
10  January 2007  Figure #2 Well Section
10  January 2007  Figure #3 Aerial Photo
10  January 2007  TMK 9-1-16
10  January 2007  USGS Topographic Survey Map – Ewa, Hawaii

THESE ARE TRANSMITTED AS CHECKED BELOW:

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

REMARKS:

COPY TO:
Ms. Vanessa Yanagawa  
w/enclosure

BELT COLLINS HAWAII LTD.:

Jon M. Young, P.E.

Belt Collins Hawaii Ltd.
2153 North King Street, Suite 200 • Honolulu, Hawaii 96819-4554 USA  
T:  • F:  honolulu@beltcollins.com • www.beltcollins.com

Belt Collins Hawaii is an Equal Opportunity Employer
STATE OF HAWAI`I
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
APPLICATION FOR A WELL CONSTRUCTION / PUMP INSTALLATION PERMIT

Instructions: Please print in ink or type and send completed application with attachments to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. Application must be accompanied by 10 copies and a non-refundable filing fee of $25.00 payable to the Dept. of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 808-586-8005. For further information and updates to this application form, visit http://www.hawaii.gov/dlnr/cwm.

WELL LOCATION INFORMATION

1. STATE WELL NO. (If already assigned): 1900-01
2. WELL NAME: EP 31632 Makakilo GC
3. ISLAND: Oahu
4. TMK: 5 - 1 - 16 - 124

The following must be attached before this application is accepted as complete:

• Portion of 7.5-Minute Series USGS topographic map (scale: 1:24,000) with well location labeled and include the name of the quad map
• Property tax map, showing well location referenced to established property boundaries
• Photograph of the proposed well site
• A schematic diagram showing the well site, access road and proposed well infrastructure

5. WELL OPERATOR'S NAME/COMPANY: D.R. Horton-Schuler Homes LLC
Well Operator's Contact: Ms. Vanessa Yanagawa
Well Operator's Mailing Address: 828 Fort Street Mall, 4th Floor Honolulu, Hawaii 96813
Well Operator's Phone: D.R. Horton-Schuler Homes LLC Ms. Vanessa Yanagawa
Well Operators Fax: D.R. Horton-Schuler Homes LLC Ms. Vanessa Yanagawa
Well Operators E-mail: vkyanagawa@drhorton.com

6. LANDOWNER'S NAME/COMPANY: D.R. Horton-Schuler Homes LLC
Landowner's Contact: Ms. Vanessa Yanagawa
Landowner's Mailing Address: 828 Fort Street Mall, 4th Floor Honolulu, Hawaii 96813
Landowner's Phone: Landowner's Fax: Landowner's E-mail: vkyanagawa@drhorton.com

PROPOSED WELL CONSTRUCTION

7. Proposed Work
   • Construct New Well
   • Abandon/Seal Well
   • Modify Existing Well
8. Construction Type
   • Drilled
   • Dug
   • Shaft
   • Tunnel
10. Proposed Work
   • Install New Pump
   • Replace Pump
   n/a
11. Proposed Pumping Rate, gpm (gallons per minute)
   n/a
12. Proposed Amount of Withdrawal, gpd (gallons per day)
   n/a

9. Is this well part of a battery of wells? □ Yes □ No
14. Proposed Surveyor name and license number (a surveyor is required for all Well Construction Permits and may be required for some Pump Installation Permits)
   n/a

PROPOSED PUMP INSTALLATION

13. Method of flow measurement
   □ Flowmeter
   □ Open Pipe
   □ Weir
   □ Orifice
   □ Other (explain)

OTHER LEGAL REQUIREMENTS

If required, items 21. and 22. must be obtained before the Commission can legally issue a permit:

21. Conservation District Use Permit (CDUP)
   □ Required, CDUP # , date approved
   □ Not Required (attach documentation from COCL)
   □ I have not checked with COCL about whether or not a CDUP is required. I understand that checking with COCL prior to making this application will expedite my review. I further understand that issues raised by this agency may delay or result in denial of the permit issuance, or revocation of the permit after it is issued.

22. Special Management Area Permit (SMA)
   □ Required, SMA # , date approved
   □ Not Required (attach documentation from applicable County agency)
   □ I have not checked with the county about whether or not an SMA Permit is required. I understand that checking with the County prior to making this application will expedite my review. I further understand that issues raised by this agency may delay or result in denial of the permit issuance, or revocation of the permit after it is issued.

23. Historic Preservation Division (HPD) of the Department of Land and Natural Resources
   □ I have consulted with the HPD regarding potential impacts of well construction activities on historic sites. I have attached applicable documentation from the HPD.
   □ I have not consulted with the HPD regarding potential impacts of well construction activities on historic sites. I understand that checking with the HPD prior to making this application will expedite my review. I further understand that issues raised by this agency may delay or result in denial of the permit issuance, or revocation of the permit if it is issued. Additionally, the history of past land use is attached.

Additional remarks, explanations, etc. (attach additional sheet if more space is needed) See attached explanation.

NOTE: Signing below indicates that the signatories understand and swear that the information provided is accurate and true to the best of their knowledge. Further, the signatories understand that upon permit approval: 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 60 days after the completion date of the permitted work; 3) in the event that the application is not completed correctly, any permit may be suspended until the item is brought in to compliance, and any work done while the permit is in suspension may result in fines of up to $500/day.

24. WELL DRILLER (Must be filled out if application is for Well Construction)
   Royal Contracting Co. Ltd., CT-2110
   Licensee business name: G-57 License No.
   Signature
   677 Ahua Street, Honolulu, Hawaii 96819
   Phone

25. PUMP INSTALLER (Must be filled out if application is for Pump Installation)
   Licensee business name: C-57/C-57a/A License No.
   Signature
   Address
   Phone
SECTION
SCALE H: 1"=100'
V: 1"=10'

Figure #2
WELL SECTION
Existing Well Mehana at Kapolei
D.R. Horton, Schuler Division
January 2007
Figure #3
Aerial Photo
Existing Well Mehana at Kapolei
D.R. Horton, Schuler Division
January 2007
Application for a Well Construction / Pump Installation Permit
State Well No. 1904-01, EP 31&32 Makakilo GC
Additional Remarks, explanations, etc.

The Owner intends on abandoning the existing State well number 1904-01, however, given the size of the dug well and the quantity of fill material required to seal it, it is likely the operation can be achieved within the 2 year limit allowed by the permit. Therefore, this permit application is filed to modify the existing 6.7 acre, 25-ft deep dug well. Royal Contracting is a licensed general contractor contracted to modify the well by backfilling with engineered fill in accordance with geotechnical recommendations. The backfilling operations will be observed and tested periodically to ensure compliance with fill and compaction requirements.

4-4-07 I explained to Jon Young that sealing permits don't have an expiration date. Therefore, he can apply for a sealing permit if their plans are to seal it in fill material becomes available. UN
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TOTAL $ 25.00

REMARKS: LINE (1) EP 31 & 32 Makakilo GC
LINE (2)
LINE (3)
LINE (4)
LINE (5)
LINE (6)
LINE (7)
LINE (8)
LINE (9)
LINE (10)
### Chloride Titration

**Date:** 3-1904-01  
**Well:** DW 42

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### CHLORIDE TITRATION RECORD

**E.P. Co.**

**Dow Well 42**

**3-1904-01**

**Island**

**Project or Job No.**

**19**

**Titrations conducted by**

**S. P. Daunus, USGS**

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<td>3.8</td>
<td>6.0</td>
<td>480</td>
<td></td>
</tr>
<tr>
<td>4/17/65</td>
<td>5</td>
<td>4.5 7.7</td>
<td>2.2</td>
<td>2.0</td>
<td>490</td>
<td></td>
</tr>
</tbody>
</table>
Oct 27 1965  SERIAL NO. NOT ON BOOKS

Loaded 1 old type F recorder
to Mr. McCleery of E.P. Co

Recorder included the following items:
1. Float (3") cable (5') and weights
2. Time gears
   a. Weekly (1 set)
   b. Daily (1 set)
3. Stage gears
   a. 1:1 (1 set)
   b. 1:2 (1 set)
4. Clock (spring wound)
5. Clock Key

Stephen P. Bawdy

W-10610 (Cork 6/30/69)
From S. Yamawaki
Kekoa Pt  
Oct. 26, 1964  
Dw 42  
(D) rundown

\[ T = \frac{264 \cdot 9700}{116} = 22 \text{ MG} \]

\[ s_1 - s_2 = \Delta s \]
Soil and Analytical Chemistry  
Agronomy Department  
EXPERIMENT STATION, HSPA  
Honolulu, Hawaii 96822

ANALYSIS OF WATER SAMPLES: Ewa Plantation Company  
Samples received 10/29/64

<table>
<thead>
<tr>
<th>Lab. No.</th>
<th>Description</th>
<th>K</th>
<th>ppm</th>
<th>1b/million gals.</th>
<th>NO₃-N</th>
<th>ppm</th>
<th>1b/million gals.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4308</td>
<td>#1 Stake site</td>
<td>13</td>
<td>105</td>
<td></td>
<td>3.5</td>
<td>29</td>
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</tr>
<tr>
<td>4309</td>
<td>#2 Pump site</td>
<td>13</td>
<td>110</td>
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<td>3.5</td>
<td>29</td>
<td></td>
</tr>
</tbody>
</table>

EXPERIMENT STATION, HSPA

By

M. Doi
Associate Agronomist

MD/s
cc-Ewa Plantation Company
Castle & Cooke, Inc.
R. D. Wiemer
Agronomy Dept.
R. B. Campbell
### Ewa Plantation Company

#### KEKONA'S CORAL PIT PUMPING TEST

**DW 42**

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Static Water Level Above Sea Level</th>
<th>Drawdown</th>
<th>MGD</th>
<th>Salinity Sample No.</th>
<th>Grains Per Gal.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oct. 22, 1964</td>
<td>10:12 am</td>
<td>+2.0</td>
<td></td>
<td></td>
<td>1</td>
<td>45.5</td>
<td>2 machines running</td>
</tr>
<tr>
<td></td>
<td>10:18 am</td>
<td>1.8</td>
<td>.20</td>
<td>8.5</td>
<td></td>
<td></td>
<td>8:00 am (at gage site)</td>
</tr>
<tr>
<td></td>
<td>10:21 am</td>
<td>1.7</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:26 am</td>
<td>1.6</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:32 am</td>
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<td>.10</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>10:40 am</td>
<td>1.4</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>10:50 am</td>
<td>1.3</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:04 am</td>
<td>1.2</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:19 am</td>
<td>1.1</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:33 am</td>
<td>1.02</td>
<td>.08</td>
<td>13.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11:46 am</td>
<td>.80</td>
<td>.22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:04 pm</td>
<td>.60</td>
<td>.20</td>
<td></td>
<td>2</td>
<td>41.3</td>
<td>Taken at pumping site</td>
</tr>
<tr>
<td></td>
<td></td>
<td>.55</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:20 pm</td>
<td>.50</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>12:35 pm</td>
<td>.42</td>
<td>.08</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1:00 pm</td>
<td>.42</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1:05 pm</td>
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<td>.28</td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>1:12 pm</td>
<td>.80</td>
<td>.10</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>1:17 pm</td>
<td>.90</td>
<td>.10</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>1:22 pm</td>
<td>1.00</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1:31 pm</td>
<td>1.10</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1:42 pm</td>
<td>1.20</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>1:54 pm</td>
<td>1.30</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2:00 pm</td>
<td>1.40</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2:14 pm</td>
<td>1.50</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3:15 pm</td>
<td>1.70</td>
<td>.20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4:45 pm</td>
<td>1.80</td>
<td>.10</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Oct. 23, 1964</td>
<td>10:00 am</td>
<td>2.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Complete recharge</td>
</tr>
</tbody>
</table>

**Recharge Rate**

<table>
<thead>
<tr>
<th>Time</th>
<th>Grains Per Gal.</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:00 pm</td>
<td>.42</td>
<td></td>
</tr>
<tr>
<td>1:05 pm</td>
<td>.70</td>
<td>.28</td>
</tr>
<tr>
<td>1:12 pm</td>
<td>.80</td>
<td>.10</td>
</tr>
<tr>
<td>1:17 pm</td>
<td>.90</td>
<td>.10</td>
</tr>
<tr>
<td>1:22 pm</td>
<td>1.00</td>
<td>.10</td>
</tr>
<tr>
<td>1:31 pm</td>
<td>1.10</td>
<td>.10</td>
</tr>
<tr>
<td>1:42 pm</td>
<td>1.20</td>
<td>.10</td>
</tr>
<tr>
<td>1:54 pm</td>
<td>1.30</td>
<td>.10</td>
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<tr>
<td>2:00 pm</td>
<td>1.40</td>
<td>.10</td>
</tr>
<tr>
<td>2:14 pm</td>
<td>1.50</td>
<td>.10</td>
</tr>
<tr>
<td>3:15 pm</td>
<td>1.70</td>
<td>.20</td>
</tr>
<tr>
<td>4:45 pm</td>
<td>1.80</td>
<td>.10</td>
</tr>
<tr>
<td>5</td>
<td>44.1</td>
<td>Gage site</td>
</tr>
<tr>
<td>6</td>
<td>41.5</td>
<td>Gage site</td>
</tr>
</tbody>
</table>

Unit 801 - approximately 4 MGD discharge
" 802 - " 4.5 " "
" 803 - " 5 " "

**Note:** Engineer field rod used to obtain water readings - .10 = approximately 1-3/16"
### Ewa Plantation Company

#### KEKONA'S COAL PIT PUMPING TEST

**Date Well 42**

<table>
<thead>
<tr>
<th>Time</th>
<th>Sea Level</th>
<th>Drawdown</th>
<th>PCD</th>
<th>No.</th>
<th>Per Gal.</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>26-04-01 8:16 am</td>
<td>+2.0</td>
<td>13.5</td>
<td>1</td>
<td>41.9</td>
<td>At gage site. 3 mach. running-801,802,803</td>
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</tr>
<tr>
<td>8:19 am</td>
<td>1.9</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:20 am</td>
<td>1.8</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:22 am</td>
<td>1.7</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:25 am</td>
<td>1.6</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:27 am</td>
<td>1.5</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30 am</td>
<td>1.4</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:34 am</td>
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<tr>
<td>8:38 am</td>
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</tr>
<tr>
<td>8:43 am</td>
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<td>8:49 am</td>
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</tr>
<tr>
<td>8:52 am</td>
<td>.90</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:04 am</td>
<td>.80</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:12 am</td>
<td>.70</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:25 am</td>
<td>.60</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:39 am</td>
<td>.50</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:22 am</td>
<td>.40</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 am</td>
<td>.30</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:26 am</td>
<td>.20</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:40 am</td>
<td>.10</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:50 am</td>
<td>.10</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11:16 am</td>
<td>-9-</td>
<td>.10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:55 am</td>
<td>-10</td>
<td>-10</td>
<td>9.5</td>
<td>5</td>
<td>41.5</td>
<td>Water level stabilizing at this point? Unit 801 removed at 1:35 pm continue with 2 units. Pumping site System beginning to recharge</td>
</tr>
<tr>
<td>1:35 pm</td>
<td>-20</td>
<td>-20</td>
<td>9.5</td>
<td>5</td>
<td>41.5</td>
<td>Runoff water from road to trench</td>
</tr>
<tr>
<td>1:39 pm</td>
<td>-.15</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:41 pm</td>
<td>-.10</td>
<td>-.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:45 pm</td>
<td>-.10</td>
<td>-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1:54 pm</td>
<td>-.10</td>
<td>-10</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2:00 pm</td>
<td>.10</td>
<td>.10</td>
<td></td>
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<td>2:15 pm</td>
<td>.10</td>
<td>.10</td>
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</table>

### Static Water Level

### Salinity Sample

<table>
<thead>
<tr>
<th>Grains</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>41.5</td>
<td>Pumping site</td>
</tr>
<tr>
<td>37.1</td>
<td>Near old pump site clear flow from open aquifer</td>
</tr>
<tr>
<td>40.3</td>
<td>Pumping site</td>
</tr>
<tr>
<td>41.5</td>
<td>Water level stabilizing at this point?</td>
</tr>
<tr>
<td></td>
<td>Unit 801 removed at 1:35 pm continue with 2 units.</td>
</tr>
<tr>
<td></td>
<td>System beginning to recharge</td>
</tr>
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</table>

### Recharge Rate

<table>
<thead>
<tr>
<th>Time</th>
<th>Rate 1</th>
<th>Rate 2</th>
<th>Notes</th>
</tr>
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<tbody>
<tr>
<td>1:39 pm</td>
<td>-.15</td>
<td>-.05</td>
<td></td>
</tr>
<tr>
<td>1:41 pm</td>
<td>-.10</td>
<td>-.05</td>
<td></td>
</tr>
<tr>
<td>1:45 pm</td>
<td>-.10</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>1:54 pm</td>
<td>-.10</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>2:00 pm</td>
<td>.10</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>2:15 pm</td>
<td>.10</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Time</td>
<td>Static Water Level Above Sea Level</td>
<td>Drawdown</td>
</tr>
<tr>
<td>--------</td>
<td>-----------</td>
<td>------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>26.2.1964</td>
<td>2:35 pm</td>
<td>.15</td>
<td>.05</td>
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<td></td>
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<td>.10</td>
</tr>
<tr>
<td></td>
<td>.27.1964</td>
<td>7:30 am</td>
<td>1.90</td>
</tr>
<tr>
<td></td>
<td>10:35 am</td>
<td>1.90</td>
<td>.01</td>
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<td></td>
<td>11:35 am</td>
<td>1.95</td>
<td>.03</td>
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<td>4:30 pm</td>
<td>1.96</td>
<td>.03</td>
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<td>28.2.1964</td>
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<td>.03</td>
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<td>.03</td>
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<tr>
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<td>1.99</td>
<td>.03</td>
</tr>
<tr>
<td>2.3.1964</td>
<td>7:30 am</td>
<td>2.05</td>
<td>.06</td>
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</tbody>
</table>
Ewa Plantation Company
Industrial Engineering Department

KEKONA'S CORAL PIT TEST PUMPING
(Elevation at Top of Stake 3.1 Feet)

Dw 42

Grains of Salt Per Gallon

Flow Rate M.E.D

Water Level Feet

Mean Sea Level

Water Level Feet
Ewa Plantation Company
Industrial Engineering Department

KEKONA'S CORAL PIT TEST PUMPING
(Elevation at Top of State 3.1 Feet)

Grains of Salt Per Gallon

Flow Rate MGD

Water Level, Feet

Mean Sea Level

Time (12N)