CHECKLIST

☑ Well Construction Permit
☐ Water Use Permit Required Also
☑ Pump Installation Permit

Well Name: Flagg Well
Well No: 2010-01
Island: Hawaii

Applicant: Claire E. Flagg
Landowner: Same

Date application received: 6/24/94
☑ Date acknowledged receipt/request more info
☑ Date filing fee deposited

☑ Application sent to following:
  Dept. of Health: Safe Drinking Water Branch
  Office of Hawaiian Affairs: Wastewater Branch
  Dept. of Hawaiian Home Lands
  State Historic Preservation Div.
  Sierra Club Legal Defense Fund
  Honolulu Board of Water Supply
  Maui Dept. of Water Supply
  Kauai Dept. of Water Supply
  Hawaii Dept. of Water Supply
  Hawaii Dept. of Public Works
  Koolau #28 (Kalua)
  Additional List (Molokai)
  Eric Hirane/Lyann Misumi: Div. of Aquatic Res.

Date agenda due: 3 Aug 94
Date submittal due: 3 Aug 94
Date submittal sent to applicant: 17 Aug 94
Date application ___ approved OR ___ disapproved
Date applicant notified of decision

Remarks: Requesting with Well Constr. & Pump Init.

Map, assign well no. (Pencil in INDEX/summary)
Log in logbook (manual) MITCH
Log in computer (WELL PERMITS) MITCH
CHECKLIST

Well Construction Permit

Water Use Permit Required Also

Pump Installation Permit

Well Name: Flagg Well

Well No: 3010-61

Island: Hawaii

Well Name & Number: Flagg Well #2

Applicant: Claire E. Flagg

Landowner: Same

Consultant: Waiman Water Services, Inc.

Date application received: 6/24/94

Date acknowledged receipt/request more info: 

Date filing fee deposited: 

Application sent to following:

Dept. of Health
Safe Drinking Water Branch

Dept. of Hawaiian Affairs

Office of Hawaiian Affairs

Wastewater Branch

Dept. of Hawaiian Home Lands

State Historic Preservation Div.

Sierra Club Legal Defense Fund

Honolulu Board of Water Supply

Hawaii Dept. of Water Supply

Hawaii Dept. of Public Works

Koolau Metro Water Board

Additional List: (Molokai)

Eric Hirano/Lyann Misuno
DIV. OF AQUATIC RES.

Date agenda due: 3 Aug 94

Date submittal due: 3 Aug 94

Date submittal sent to applicant: 

Date application approved OR disapproved: 17 Aug 94

Date applicant notified of decision: 

Remarks: Requesting both Well Contr. & Pump Unit

Jucilia

Map, assign well no. (Pencil in INDEX/Summary)

Log in logbook (manual) MITCH

Log in computer (WELL PERMITS) MITCH
EXHIBIT 1
COMMISSION ON WATER RESOURCE MANAGEMENT
ROUTE SLIP FOR PERMIT ISSUANCE 10/3/06

FROM: Ryan
DATE: 11/01/06
SUSPENSE DATE: __________

TO: CHING, F.
INIT. ________
TO: DANBARA, S.
INIT. ________
TO: FUJII, N.
INIT. ________
TO: GOODING, K.
INIT. ________
TO: HARDY, R.
INIT. ________
TO: HEKEKIA, J.
INIT. ________
TO: HOAGBIN, S.
INIT. ________
TO: ICE, C.
INIT. ________
TO: IMATA, R.
INIT. ________
TO: KIMURA, J.
INIT. ________
TO: KURASHIGA, L.
INIT. ________
TO: MA, L.
INIT. ________
TO: KANO, D.
INIT. ________
TO: HYE, M.
INIT. ________
TO: SAKODA, E.
INIT. ________
TO: SWANSON, S.
INIT. ________
TO: UYENO, D.
INIT. ________
TO: YODA, K.
INIT. ________
TO: YOSHINAGA, M.
INIT. ________
TO: Approval
SUSPENSE DATE: ________
TO: Signature
FOR: ________
PLEASE: ________
_1_ Review & Comment
_2_ Take Action
_3_ Type Draft
_4_ Type Final
_5_ File
_6_ Xerox ______ copies
_7_ See Me
_8_ Approval
_9_ Signature
_10_ Information

WELL NUMBER: 3010-01
WELL NAME: Flagg

☐ WELL CONSTRUCTION

ATTACHMENTS FOR WELL CONSTRUCTION PERMIT:
1 COVER LETTER
2 PERMIT (2x)
COMMENTS:
3 SDWB
4 WWB
5 CWB
6 LD
7 HP
8 OCCL
9 SMA
10 KEVIN'S WORKSHEET

TO BE SENT TO APPLICANT: 11/0

☐ PUMP INSTALLATION

ATTACHMENTS FOR PUMP INSTALLATION PERMIT:
1 COVER LETTER
2 PERMIT (2x)
COMMENTS:
3 SDWB
4 WWB
5 CWB
6 LD
7 HP
8 OCCL
9 SMA
10 KEVIN'S WORKSHEET

TO BE SENT TO APPLICANT: 

FOR OFFICE USE ONLY: 

---------------------------------
November 13, 2006

Ref: 3010-01.pip

Mr. Mel Lima
Mel's Water Works
3075 Ala Noha Place #510
Honolulu, HI 96818

Dear Mr. Lima:

Pump Installation Permit
Flagg Well #1 (Well No. 3010-01)

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.

2. Attached for your information are copies 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.

The permittee is responsible for all conditions of the permit. This includes ensuring the submission of a completed Well Completion Report Part II form within sixty (60) days after the pump installation work is completed. Be advised that you may be subject to fines of up to $5,000 per day for any violations of your permit conditions starting from the permit approval date.

Please sign both permit originals and return one for our files.

IMPORTANT - Pump installation shall not commence until a fully signed permit is returned to the Commission.

If you have any questions, please call Ryan Imata of the Commission staff at 587-0255.

Sincerely,

Peter T. Young
Chairperson

Enclosure
c: Pural Water Specialty, Inc. (with applicable comments – DOH SDWB, WWB, CWB, DWS)
Claire E. Flagg Trust (with applicable comments – DOH SDWB, WWB, CWB, DWS)
USGS
Hawaii DWS
PUMP INSTALLATION PERMIT  
Flagg Well #1, Well No. 3010-01

Note: This permit shall be prominently displayed at the site until the work is completed.

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 Flagg Well #1 (Well No. 3010-01) at TMK 1-8-011:063, Hawaii, 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 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. No withdrawal of water shall be made other than for testing until a Certificate of Pump Installation Completion has been issued by the Commission.

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

4. The pump installation permit shall be for installation of a 500 gpm rated capacity, or less, pump in the well. This permanent capacity may be reduced in the event that the pump test data does not support the capacity.

5. A water-level measurement access shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels.

6. The permittee shall install an approved meter or other appropriate means for measuring and reporting withdrawals and appropriate devices or means for measuring chlorides and temperature at the well head.

7. Well Completion Report Part II shall be submitted to the Chairperson within 60 days after completion of work. This form can be obtained by contacting staff or on the internet at www.hawai.egov/dlnr/cwrm.

8. 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.

9. The pump installation permit application and any related staff submittal approved by the Commission are incorporated into this permit by reference. This permit is also 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. Any variances from the HWCPIS shall be approved by the Chairperson prior to invoking the variance.

10. 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 the date the permit expires.

11. 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.

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

W. Roy

Date of Approval: November 6, 2006
Expiration Date: November 6, 2008

PETER T. YOUNG, 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 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.

Installer's Signature: C-57, C-57a, or A License #: C-18254 Date: 

Printed Name: Mel Lima Firm or Title: Mel's Water Works

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

Attachments
October 4, 2006

Mr. Chris Yuen, Director
Planning Department
County of Hawaii
101 Pauahi Street
Hilo, HI 96720

Dear Mr. Yuen:

Special Management Area Use Permit Requirements for
Pump Installation Permit Application
Flagg Well #1 (Well No. 3010-01)

Transmitted for your review and comment is a copy of the captioned Pump Installation permit application.

We would appreciate your comments on the captioned application with regard to the SMA permitting requirements specific to your division. Please respond by returning this cover memo form by November 6, 2006. 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 Ryan Imata of the Commission staff at 587-0255.

Sincerely,

DEAN A. NAKANO
Acting Deputy Director

RESPONSE:

[ ] This well project [ ] requires [X] does not require a SMA. If a SMA is required it [ ] has [ ] has not been approved and [ ] is [ ] is not currently active.

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

[ ] No objections

[ ] Other comments:

Contact Person: E. ZAMANUWA

Phone: 961-388-297

Signed: ________________

Date: 10/30/06

Signed: ________________

Date: 10/30/06

RI:ss
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 321
HONOLULU, HAWAI'I 96809

October 4, 2006

TO: Honorable Chiyome L. Fukino, M.D., Director
    Department of Health
    Attention: Director's Office
    Harold Yee, Wastewater Branch
    Acting Branch Chief, Safe Drinking Water Branch
    Alec Wong, Clean Water Branch

FROM: Peter T. Young, Chairperson
    Commission on Water Resource Management

SUBJECT: Pump Installation Permit Application
    Flag Well #1 (Well No. 3010-01)

Transmitted for your review and comment is a copy of the captioned Pump Installation permit 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 November 6, 2006. If we do not receive comments or a request for additional review time by this date, we will assume that 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 Ryan Imata of the Commission staff at 587-0255.

RI:ss
Attachment(s)

RESPONSE:

[ ] This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or for 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 39, Rules Relating to Potable Water Systems, §§11-10.19). This well does not qualify as a source serving a public water system serving 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 bacteria, dissolved and chemical presence before utilizing such water and monitor the water quality thereafter. However, if future plans include use from this source in the event the public water system definition changes, the Director of Health approval may be 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 by physically separating potable and non-potable systems by an air gap or an approved backflow preventer and by clearly labeling all non-potable vessels 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 potable wastewater contamination is not located near the proposed well site (information attached).

[ ] An NPDES permit is required.

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

[ ] In the event that the location of the well changes, but is still within the parcel described on this application, our division considers the comments to still be applicable, and we do not need to review the new location.

[ ] No comments/recommendations

Contact Person: Stuart Yamada
Phone: 586-4258

Signed: [Signature]
Date: 10/13/06
STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P.O. BOX 621  
HONOLULU, HAWAII 96829  

October 4, 2006

TO: Honorable Chiyoue L. Fukino, M.D., Director  
Department of Health  
Attention: Director's Office  
Harold Yee, Wastewater Branch  
Acting Branch Chief, Safe Drinking Water Branch  
Alec Wong, Clean Water Branch

FROM: Peter T. Young, Chairperson  
Commission on Water Resource Management

SUBJECT: Pump Installation Permit Application  
Flagg Well #1 (Well No. 3010-01)

Transmitted for your review and comment is a copy of the captioned Pump Installation permit 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 November 6, 2006. If we do not receive comments or a request for additional review time by this date, we will assume that 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 Ryan Imata of the Commission staff at 587-0255.

R:\ss  
Attachment(s)

RESPONSE:

[ ] This well qualifies as a source which will serve as a source of possible water to a public water system (defined as serving 25 or more people in 60 days or less per year or 35 or more service connections) and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR, Title 16, Chapter 50, Rules Relating to Potable Water Systems, §§ 16-20-29.

[ ] 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 35 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 prevention devices by physically separating potable and non-potable systems by air gap or an approved backflow preventers, and by clearly labeling all non-potable pipes 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).

[ ] An NPDES permit is required.

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

[ ] In the event that the location of the well changes but is still within the parcel described on this application, our division considers the comments to still be applicable, and we do not need to review the new location.

[ ] No comments/objections

Contact Person: Alec Wong  
Phone: 586-4309

Signed: Alec Wong  
Date: 10/12/06  

06E990
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, Title 11, Chapter 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
TO: Honorabe Chiyome L. Fukino, M.D., Director
Department of Health
Attention: Director’s Office
Harold Yee, Wastewater Branch
Acting Branch Chief, Safe Drinking Water Branch
Alec Wong, Clean Water Branch

FROM: Peter T. Young, Chairperson
Commission on Water Resource Management

SUBJECT: Pump Installation Permit Application
Flagg Well #1 (Well No. 3010-01)

Transmitted for your review and comment is a copy of the captioned Pump Installation permit 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 November 6, 2006. If we do not receive comments or a request for additional review time by this date, we will assume that 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 Ryan Imata of the Commission staff at 587-0255.

RESPONSE:

This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 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 II, 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).

An NPDES permit is required.

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

In the event that the location of the well changes but is still within the parcel described on this application, our division considers the comments to still be applicable, and we do not need to review the new location.

No comments/objections

Contact Person: Lori Monikami
Phone: 586-4294
Signed: Lori Monikami
Date: 10/12/06
new well owner this time.
COMMISSION ON WATER RESOURCE MANAGEMENT
ROUTE SLIP FOR NEW APPLICATIONS

FROM: RYAN  DATE: 9-Aug-06  SUSPENSE DATE: ____________

TO: CHING, F.  INIT: 4  TO: NAKAMA, L.  INIT: 1  FOR: Approval
FUJII, N.  INIT: 3  NAKANO, D.  INIT: 1  Signature
GOODING, K.  INIT: 3  OHYE, M.  INIT: 3  Information
1 HARDY, R.  INIT: 3  SAKODA, E.  INIT: 3
HIGA, D.  INIT: 3  SWANSON, S.  INIT: 3
2 HOAGBIN, S.  INIT: 3  UYENO, D.  INIT: 3
ICE, C.  INIT: 3  YODA, K.  INIT: 3
IMATA, R.  INIT: 3  YOSHINAGA, M.  INIT: 3
KUNIMURA, I.  INIT: 3

WELL NUMBER  3010-01  WELL NAME  Flagg Well #1

☐ WELL CONSTRUCTION  ☑ PUMP INSTALLATION  ☑ BOTH

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 $25 FEE DEPOSIT SLIP  
12 DHCP/CDUP/SMA pre-screen  

(SMA map printout http://gis.hicentral.com/website/parcelzoning/viewer.htm., or INGRID'S SMA/CD MAP)

(LUC map printout http://luc.state.hi.us/luc_maps.htm., or INGRID'S SMA/CD MAP)

FOLDER: ☑ MADE NEW FILE FOLDER, ATTACHED
☐ FILE FOLDER ALREADY MADE, IN FILE CABINET

INCOMPLETE ACTION DATES:

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Xerox copies

5 copies
Mr. Mel Lima  
Mel's Water Works  
3075 Ala Poha Place #510  
Honolulu, HI 96818  

Dear Mr. Lima:

Pump Installation Permit Application for Well No. 3010-01

We acknowledge receipt, on August 8, 2006, of your completed Pump Installation permit application and filing fee for the Flagg Well #1 (Well No. 3010-01). For clarification, this application supersedes the pump permit issued to you on August 31, 1994, which expired on August 31, 1996. You can expect your application to be processed within ninety (90) days from this date.

For your information, the attached table describes the process, responsible parties, and deadline requirements for drilling or modifying a well and installing, modifying, or replacing a pump.

By this acceptance letter, we are also notifying the well operator/landowner that water may not be pumped for purposes other than testing until the certificate of pump installation completion letter is issued to the well operator and landowner. Additionally, the permitted pump capacity described on the pump installation permit may be reduced in the event that the pump test does not support the capacity. No certificate of pump installation will be issued until the Commission has determined that the pump capacity will not have adverse effects on the aquifer, other nearby wells, or streams. In other words, you may need to remove the pump and install a smaller pump at the Commission’s discretion before you can withdraw water for purposes other than testing.

If you have any questions about your permit application, please contact Ryan Imata of the Commission staff at 587-0255 or toll-free at 974-4000 (Hawaii), 274-3141 (Kauai), 984-2400 (Maui), or 1-800-468-4644 (Lanai & Molokai) extension 70255.

Sincerely,

DEAN A. NAKANO  
Acting Deputy Director

RI:ss
Attachment
c: Pural Water Specialties Co., Inc.
Claire E. Flagg Trust
TO: Honorable Chiyome L. Fukino, M.D., Director
   Department of Health
   Attention: Director’s Office
   Harold Yee, Wastewater Branch
   Acting Branch Chief, Safe Drinking Water Branch
   Alec Wong, Clean Water Branch

FROM: Peter T. Young, Chairperson
   Commission on Water Resource Management

SUBJECT: Pump Installation Permit Application
   Flagg Well #1 (Well No. 3010-01)

Transmitted for your review and comment is a copy of the captioned Pump Installation permit 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 November 6, 2006. If we do not receive comments or a request for additional review time by this date, we will assume that 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 Ryan Imata of the Commission staff at 587-0255.

RESPONSE:

This well qualifies as a source which will serve as a source of potable water to a public water system (defined as 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 II, 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).

An NPDES permit is required.

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

In the event that the location of the well changes but is still within the parcel described on this application, our division considers the comments to still be applicable, and we do not need to review the new location.

No comments/objections

Contact Person: ______________________ Phone: ______________

Signed: ____________________________ Date: ______________
TO: Russell Tsuji, Administrator
   Land Division
FROM: Dean A. Nakano, Acting Deputy Director
   Commission on Water Resource Management
SUBJECT: Pump Installation Permit Application
         Flagg Well #1 (Well No. 3010-01) TMK 1-8-011:063

Transmitted for your review and comment is a copy of the captioned Pump Installation 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 November 6, 2006. 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 Ryan Imata of the Commission staff at 587-0255.

RI: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: ______________
Transmitted for your review and comment is a copy of the captioned Pump Installation 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 November 6, 2006. 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 Ryan Imata of the Commission staff at 587-0255. 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.

RI: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: ________________
October 4, 2006

Mr. Chris Yuen, Director
Planning Department
County of Hawaii
101 Pauahi Street
Hilo, HI 96720

Dear Mr. Yuen:

Special Management Area Use Permit Requirements for
Pump Installation Permit Application
Flagg Well #1 (Well No. 3010-01)

Transmitted for your review and comment is a copy of the captioned Pump Installation permit application.

We would appreciate your comments on the captioned application with regard to the SMA permitting requirements specific to your division. Please respond by returning this cover memo form by November 6, 2006. 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 Ryan Imata of the Commission staff at 587-0255.

Sincerely,

DEAN A. NAKANO
Acting Deputy Director

RESPONSE:

[ ] This well project [ ] requires [ ] does not require a SMA. If a SMA is required it [ ] has [ ] has not been approved and [ ] is [ ] is not currently active.

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

[ ] No objections

[ ] Other comments:

Contact Person: ___________________ Phone: ______________
Signed: ________________________ Date: ______________
License Screen

License Type Codes ->

Please click a link listed below to display the other screen.

****** GENERAL LICENSEE ******

LIC ID: CT-18254
Active/Inactive: ACTIVE
NAME: MEL'S WATER WORKS HAWAII INC
TRADE NAME:
STATUS: CURRENT, VALID & IN GOOD STANDING
ENTITY: CORPORATION
ORIG LIC DATE: 5/7/93
CLASS PREFIX: C
EXPRESS DATE: 9/30/08
SPECIAL PRIVILEGE:
BUSINESS ADDR: 95-646 LAWENA ST MILILANI HI 96789
MAILING ADDR:

Click here to enter search criteria for prior complaints history ->

For prior complaints and disciplinary history, contact licensing and business information center at (808)587-3295.

<-Back New Search->
Search Results

Assessed Values reflect tax year 2006.

Search criteria: TMK Taxkey 3-1-8-11-63

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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.

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TOTAL $ 50.00

REMARKS:
- LINE (1) Flagg Well #1
- LINE (2) Schmidt 2006 Well
- LINE (3)
- LINE (4)
- LINE (5)
- LINE (6)
- LINE (7)
- LINE (8)
- LINE (9)
- LINE (10)
STATE OF HAWAII
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 808-682-2030. For further information and updates to this application form, visit http://www.hawaiigov/dlnr/cwrm.

WELL LOCATION INFORMATION
1. STATE WELL NO. (If already assigned) 3010-1
2. WELL NAME FLAGG WELL #1
3. ISLAND HAWAII
4. TMK 1 - 8 - 1 - 063

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 PURAL WATER SPECIALTY CO., INC.
OPERATOR'S CONTACT EARL CHIMURA
6. LANDOWNER'S NAME/COMPANY CLAIRE E. FLAGG TRUST
LANDOWNER'S CONTACT JIM FLAGG

Well Operator's Mailing Address
1955 VINEYARD STREET
WAIALUKE, HI 96793

Well Operator's Phone 808-242-7259
Well Operator's Fax 808-242-8878
Well Operator's E-mail pural@hawaii.com

Landowner's Mailing Address
710 FIERO LANE #14
SAN LUIIS OBISPO, CA 93401

Landowner's Phone 805-544-8080
Landowner's Fax 805-544-0812
Landowner's E-mail jflagg@phot.com

PROPOSED WELL CONSTRUCTION
7. Proposed Work
☐ Construct New Well
☐ Modify Existing Well
☐ Abandon/Seal Well
8. Construction Type
☐ Drilled
☐ Dig
☐ Shaft
☐ Tunnel

9. Is this well part of a battery of wells? □ Yes □ No

10. Proposed Work
☐ Install New Pump
☐ Replace Pump

11. Proposed Pumping Rate, gpm (gallons per minute)
12. Proposed Amount of Withdrawal, gpd (gallons per day)

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

PROPOSED PUMP INSTALLATION
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, as this is for a Pump Installation Permit. However, topographic survey for overall Watainal Subdivision project was conducted by R. M. Towill Corporation.

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 OCCL)
☐ I have not checked with OCCL about whether or not a CDUP is required. I understand that checking with OCCL 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 (SMAP)
☐ 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 after it is issued. Additionally, the history of past land use is attached.

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

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 $2500/day.

24. WELL DRILLER (Must be filed out if application is for Well Construction)
Licensee business name C-57 License No.
Signature Print Date
Address Phone Fax E-mail

25. PUMP INSTALLER (Must be filed out if application is for Pump Installation)
Wells Water Works C-18254
Licensee business name C-57/C-257A License No.
Signature Print Date
Address Phone Fax E-mail
PROPOSED WELL SECTION

(please attach schematic if different from diagram provided below)

Elevation at top of casing \_\_\_ ft., msl*

Hole Diameter: \_\_\_ in.

Minimum of 2' Radius & 4'' Thick Concrete Pad (to contain benchmark surveyed to nearest 0.01 ft.)

Ground Elevation: \_\_\_ ft., msl*

Cement Grout: 1300 ft.
(min. 70% of distance from ground elevation to top of water surface or 500 ft., whichever is less.)

Grouting method:
- Positive displacement
- Other

Annular space between hole and casing (1.5" for positive displacement, 3" for other methods):

in.

Rock or Gravel Packing:
1237 ft. Total Depth

1537 ft.

Solid Casing: (≥ 90% x (Ground Elev.-Water Level Elev))
Total Length: 1337 ft.
Nominal Diameter: 14 in.
Wall Thickness: 1.75 in.
Bottom Elevation: 1277 ft., msl*

Solid Casing Material:
- Stainless Steel:
- PVC
- ABS
- Other

Open Casing:
- Perforated X Screen
- Other

Total Length: 160 ft.
Nominal Diameter: 14 in.
Wall Thickness: in.
Bottom Elevation: 1117 ft., msl*

Open Hole:
Length: blank in.
Diameter: blank in.
Bottom Elevation: blank ft., msl*

* The approximate elevation must be referenced to mean sea level (msl) at the time of application filing. Final elevations of well components shall be submitted in the Well Completion/Well Abandonment reports and referenced to a benchmark which has been established by a surveyor licensed by the State.

For non-salt water Basal Wells - bottom elevation of well should not be deeper than 1/4 of aquifer thickness or, Bottom Elevation of Well Limit = \( \frac{4}{5} \times \text{Water Level Elev.} \)

Example: Estimated + 2 ft. Water Level Elev. → Bottom Elevation of Well Limit = \( \frac{4}{5} \times (1491 + 2) \) = 118.5 ft.

Solid Casing Material:
Carbon Steel: compliant with (check one or more): ANSI/AWWA C200 0 API Spec. 5L 0 ASTM A53 0 ASTM A139
And compliant with (check one or more): ASTM A242 (or A606) 0 Type E 0 Type S 0 Grade B 0 Other
Stainless Steel: (check one): ASTM A409 (production wells) 0 ASTM A312 (monitor wells)
ABS Plastic conforming to ASTM F490 and ASTM D1527: (check one) 0 Schedule 40 0 Schedule 80 0 Schedule 120
PVC Plastic conforming to ASTM F490 and (ASTM D1785 or ASTM D2241): (check one): 0 Schedule 40 0 Schedule 80 0 Schedule 120
Thermoset Plastic: (check one)
- Filament Wound Resin Pipe conforming to ASTM D2996
- Centrifugally Cast Resin Pipe conforming to ASTM D2997
- Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517
- Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950
- PTFE Fluorocarbon Tubing conforming to ASTM D3296
- FEP Fluorocarbon Tubing conforming to ASTM D3296

Open Casing Material:
Carbon Steel: compliant with (check one or more): ANSI/AWWA C200 0 API Spec. 5L 0 ASTM A53 0 ASTM A139
And compliant with (check one or more): ASTM A242 (or A606) 0 Type E 0 Type S 0 Grade B 0 Other
Stainless Steel: (check one): ASTM A409 (production wells) 0 ASTM A312 (monitor wells)
ABS Plastic conforming to ASTM F490 and ASTM D1527: (check one) 0 Schedule 40 0 Schedule 80
PVC Plastic conforming to ASTM F490 and (ASTM D1785 or ASTM D2241): (check one): 0 Schedule 40 0 Schedule 80 0 Schedule 120
Thermoset Plastic: (check one)
- Filament Wound Resin Pipe conforming to ASTM D2996
- Centrifugally Cast Resin Pipe conforming to ASTM D2997
- Reinforced Plastic Mortar Pressure Pipe conforming to ASTM D3517
- Glass Fiber Reinforced Resin Pressure Pipe conforming to AWWA C950
- PTFE Fluorocarbon Tubing conforming to ASTM D3296
- FEP Fluorocarbon Tubing conforming to ASTM D3296
Ryan,

Sorry about taking so long to follow-up on our phone discussion this morning. Here's the Well Completion Report that we have on file, indicating that it was tested at a sustained rate of 478 gpm in 1997. However, as I mentioned to you, we are planning on installing a 500 gpm permanent pump, as we feel that the well is capable of sustaining far more than 478 gpm.

We were planning on running the pump for only 24 hours, and taking a sample at the end for analysis to satisfy DOH. However, do we have to instead do another minimum 48-hour test with the 500 gpm pump - while monitoring the drawdown - to also satisfy CWRM? Thanks for your help.

Ivan

The pump test is OK. 478 gpm is very close to 500 gpm. They should give the recovery data from the pump test.

Kevin

What do you think? Is pump test ok?

This document is considered confidential and intended for the below listed person if you receive this in error. Thank you.

Please contact Loretta Potts if there are any problems.

Phone (808) 533-3646.
FLAGG WELL #1
WELL COMPLETION REPORT

State Well No. 3010-01.

July 1997
Filed with Quality Data on 22 Sep 97

Prepared by Waimea Water Services Inc.
for
Claire E. Flagg
FLAGG WELL #1
WELL COMPLETION REPORT

State Well No. 3010-01

WELL CONSTRUCTION, CWRM PERMIT

The Flagg Well #1 (State Well No. 3010-01) was permitted by the State of Hawaii, Commission on Water Resource Management on 17 August 94. Due to construction issues with the developer, the well was not started. An extension was granted on the start date to 31 May 95. Another extension was granted for 31 August 95. The project started on 25 August 95. An extension on the completion date was granted until 31 August 97 (copies attached).

WELL CONSTRUCTION, PLANS

Plans and specifications by Waimea Water Services Inc. were reviewed and approved by Mr. Jim Flagg, owner's representative. The well location and basic water system site plan were agreed to prior to locating the well in the field. The location maps showing the well location and siting are included along with an overall map of the area.

WELL CONSTRUCTION, SUMMARY

The Well construction contracts were signed 11 July 95. Site work was started and the conductor pipe set on 21 September 95. The Notice to Proceed on the pilot hole was issued on 12 February 96. Drilling of the pilot hole commenced on 28 February 96. The pilot hole was completed on 4 April 96 to a depth of 1537 feet below ground.

The bench mark at the well head was set at 2654' elev. The water level was measured at a depth below ground of 1110 feet (1544' elev).

A pilot hole was reamed in two passes to 20". Reaming of the pilot hole was completed on 7 May 97 to 1537'. The water level stood at 1167' depth or 1487' elev.

A video log of the open hole was made on 12 May 97.

Flagg Well 1; Completion Report
Page #1
The 14" ID ASTM A-53 solid casing was installed starting on 14 May 97 and grouting of the annulus space around the well casing was completed by 4 June 97. An As-built section drawing of the well is attached.

Plumbness and alignment tests were conducted on 10 July (see attached report). A 40 foot long dummy with three 13.25 inch diameter rings, spaced evenly along its length, passed freely down the cased well. A cage traverse of the cased well was also performed. The results of the tests showed that the well met the specifications for each 100' and did not vary in excess of more than two-thirds the smallest inside diameter for any 100 foot interval.

**PUMPING TEST - SPECIFIC CAPACITY**

No specific capacity pumping test of the cased well was conducted. The long term test concluded, that at a rate of 478 gpm, the drawdown was not sufficient to show any real variation at the planned pumping rate of up to 400 gpm.

**PUMPING TEST - LONG TERM TEST**

The well was surged and developed prior to the test. Air line measurements were made using a 30 psi pressure gage with 0.10 psi gradations and 0 to 30 psi continuous chart recorder. Direct water level measurements were made before and after the test using a sounding tape measure was also used in the monitoring tube installed. A monitoring tube was installed but not used because of a concern as to the tape getting stuck in the wet tube at the full depth of the well. The non-pumping water level stood at 1163' below ground, or at an elevation of 1491 feet at that time of the test.

A long term aquifer pumping test at an average rate of 478 gpm commenced at 10:12 am on 27 June 97. Water levels were recorded at the pumping well using an air line system with bubbler.

The pumping water level data after 95 hours and 45 minutes (5,745 minutes) resulted in a total drawdown in the pumping well of 0.2 psi, or 0.46 feet. A total of 2,741,000 gallons were pumped at an average rate of 478 gpm. Recovery was within 5 minutes.
The pumping test was stopped after 96 hours of pumping as there had been no change in drawdown or water quality, as measured by electrical conductance and temperature. The pumping rate was stable at an average of 478 gpm, 128 gpm more than a possible design rate of 350 gpm. State Commission of Water Resource Management (CWRM) suggested pumping test protocol calls for at least 48 hours of pumping and if the drawdown water level is stable for 24 hours, the test can be stopped.

QUALITY TESTING

Water quality samples were taken from the pumping well to the end of the pumping test (Monday, 30 June 97; 12:00 noon) by AECOS Laboratories. The current list of contaminants from the State Dept. of Health “Contaminants to be Tested in All New Sources of Potable Water”; revised 26 January 96) was used for determining the items to be tested for (see attached list of quality results). Based on the results of the laboratory testing, the groundwater from this well meets the new source quality standards for potable water for the State of Hawaii. The laboratories used were certified by the State Department of Health and included AECOS Labs and Montgomery Laboratory.
DATA SUMMARY

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<td>Elevation</td>
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<td>Depth to water below ground level</td>
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<td>Draw down - Water Level</td>
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<td>At 478 gpm</td>
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<td>Pumping Rate (average)</td>
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<td>Temperature</td>
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<td>Electrical Conductance</td>
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<td>Total pumpage as of 96 hours (5,745 minutes)</td>
<td>2,741,000 gallons</td>
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CONCLUSIONS

Based on the data obtained from the aquifer pumping test, it appears that:

1. The aquifer system is capable of producing and sustaining the potential water requirements of 688,000 gallons per day (average day).

2. The Well is capable of reliably producing at the design rate of 300 to 400 gpm on a long term production basis.

3. The recommended pump intake setting is at elevation 1,389 feet. This will provide a submergence of about 100 feet. The motor diameter (submersible) should not exceed 12".

4. The water quality tests, based on results of the laboratory analyses, indicate that the groundwater is excellent in quality and meets with the SDWA and State DOH requirements.
WELL CROSS SECTION DIAGRAM

Flagg Well 1; Completion Report
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WELL PERMIT
(attached)
Mrs. Claire E. Flagg
P.O. Box 13359
San Luis Obispo, Hawaii 93406

Dear Mrs. Flagg:

Well Construction Permit Extension
Flagg Well #1 (Well No. 3010-01)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s). As part of the Commission's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 11:

**Special Conditions**

1. The one-inch monitor tube and Aquifer Pump Testing Procedure under Standard Condition 2 are waived but the applicant shall coordinate with the Commission and conduct a pumping test, or test, adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The test shall be conducted under the supervision of a qualified groundwater geologist, hydrologist, or engineer. A suggested protocol is attached. All other requirements under Standard Condition 2 still apply.

2. The extension shall be to valid until August 31, 1997.

Additionally, the Commission authorized the Chairperson to approve and issue a pump installation permit supported by information provided from aquifer pumping test results, required in Well Construction Standard Condition 6e, subject to the Standard Pump Installation Conditions which will be issued to you when we receive your aquifer pump test results.

Please sign the permit copies and return one for our files. Also, copies of the aquifer pump test procedure and the well completion report form are enclosed for your use.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214 or toll-free at 1-800-468-4644, extension 70214.

Aloha,

MICHAEL D. WILSON
Chairperson

Enclosures

c: Waimea Water Services
WELL CONSTRUCTION PERMIT EXTENSION

Flagg Well #1, Well No. 3010-01

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 construction and testing of Flagg Well #1 Well (Well No. 3010-01) at Glenwood, Hawaii, TMK 1-B-11-83, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. 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 by this permit commences.

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 Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure (attached). The permittee shall submit to the Commission 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 Commission.

3. 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.

4. 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 (567-1045) immediately.

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

6. The following shall be submitted to the Commission within thirty (30) days after completion of work:
   b. Elevation (referred 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 water quality data.

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

8. The well construction permit application and staff submittal approved by the Commission at its August 14, 1996 meeting are incorporated into the permit by reference.

9. 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 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion 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.

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

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

Date of Approval: August 14, 1996
Expiration Date: August 31, 1997

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

Applicant’s Signature: [Signature]
Printed Name: CLAIRE B. FLAGG
Firm or Title: OWNER

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

Attached:
USGS
Department of Health, Safe Drinking Water & Wastewater Branches
Hawaii Department of Water Supply
Waihale Water Services

WELL PUMPING TEST
(attached)
PLUMBNESS AND ALIGNMENT TEST
(attached)
### Flag Well Alignment Survey

**Survey 7/10/97**

**Sheave at 56'**

**Casing 14 ID**

**Allowed Variation = 9.25" In 100 Feet**

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### FLAUGG WELL ALIGNMENT SURVEY

**SHEAVE AT 56'**  
**CASING 14' ID**  
**ALLOWED VARIATION = 9.25" IN 100 FEET**

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Flagg Well 1 Plumbness Survey; West Drift; 7/10/97

--- DRIFT DIFF. INCHES ---

Alignment in inches

Depth in Feet
### Log Conditions

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14" Going x 66% = 9.24" Variation

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Sheave to Casing 56'
Ms. Claire E. Flagg  
P.O. Box 13359  
San Luis Obispo, CA 93406  

Dear Ms. Flagg:

Well Completion Report for Well No. 3010-01

We have received your Well Completion Report Part II for the Flagg Well (Well No. 3010-01) and acknowledge that it is complete.

If you have any questions, please contact Mr. Ryan Imata of the Commission staff at (808) 587-0255.

Sincerely,

RAE M. LOUI  
Deputy Director  

RI:ss
**PART I. WELL CONSTRUCTION REPORT**

3. Drilling Company: **WAT'ELT DRILLING & DEVELOPMENT**

4. Name of driller who performed work: **JACK LINDBERG**

5. Type of rig/construction: **ROTOR**

6. Date(s) Well Construction and pump tests (if any) completed: **JULY 1, 1997**

7. GROUND ELEVATION (referred to mean sea level, msl): 2654 ft.
   - Well Bench Mark (description/location): **CONDUCTOR PIPE**
   - Elevation (msl): 2654 ft.

8. DRILLER’S LOG: Please attach geologic log (if available or if required by permit)

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9. Total depth of well below ground: 1537 ft.

10. Hole size:
   - 20 inch dia. from 0 ft. to 1537 ft. below ground
   - 312 inch dia. from 1537 ft. below ground

11. Casing installed:
   - 14 in. I.D. x 375 in. wall solid section to 1377 ft. below ground
   - 14 in. I.D. x 312 in. wall perforated section to 1537 ft. below ground
   - Casing Material/Slot Size: 90 sq inches per ft

12. Annulus:
   - Grouted from 0 ft. below ground to 1300 ft. below ground
   - Gravel packed from 1300 ft. below ground to 1537 ft. below ground

13. Initial water level: 1163 ft. below ground.
    - Date and time of measurement: 6/25/97 10 am

14. Initial chloride: 4 m/l ppm
    - Date and time of sampling: 6/27/97 2 pm
    - Date and time of measurement: 6/27/97 2 pm

15. Initial temperature: 63 °F
    - Date and time of measurement: 6/27/97 2 pm

16. PUMPING TESTS: Reference Point (R.P.) used: **CONDUCTOR PIPE**, which elevation is 2654 ft.
   - (1) Step-Drawdown Test Date 6/25/97
     - Start water level 1163 ft. below R.P.
     - End water level 1162.5 ft. below R.P.
   - (2) Long-term Aquifer Test Date 6/27/97
     - Start water level 1163 ft. below R.P.
     - End water level 1162.5 ft. below R.P.

17. Aquifer Pump Test Procedures data & graphs (1/96 LTAT Form) attached? **X Yes _No**

18. As-built drawings attached? **X Yes _No**

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

**Well Drilling Contractor:**

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**Surveyor (print):**

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PART II. (PERMANENT) PUMP INSTALLATION REPORT

20. Pump Installation Company: ____________________________

21. Name of person performing work: ____________________________

22. Date Pump Installation Completed: ____________________________

23. 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 _______

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

25. 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):

   Water Level Depth (ft.) Rock Description, Remarks, Dates Water Level Depth (ft.) Rock Description, Remarks,
   Water Level Dates (ft.) Rock Description, Remarks, Dates
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19.& 25. Remarks:
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WELL CROSS SECTION
FLAGG WELL #1

WWS
7H1097

Top of casing elevation - to be determined
Ground elevation - 2654' (approx.)

Well Bore - 20'
Grout annulus
Casing - Solid 14" ID

1537'
1337'
1300'
1163'

1277' elev.
20' seal

Water level 1491' elev.

Casing, Louvered Screen 160'
annulus, gravel pack

Bottom of casing 1117' elev.
Bottom of Hole

Notes:
Pump and motor length - approx. 75' (high voltage)

WELL CROSS SECTION DIAGRAM

Flagg Well 1; Completion Report
Page #6
### Long Term Test

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FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages:

To: John Stubbart

Company: Wai'anae Water Services

From: Ryan Iwata

Message: Flagg well WCR

Total number of pages (including Transmittal Page) 2

Please call back if not legible: (808) 587-0255

Sending Facsimile No.: (808) 587-0219

Receiving Facsimile No.: ( ) 885-7851
**STATE OF HAWAII**  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**WELL COMPLETION REPORT**

| (Check Appropriate Box) | □ Well Construction | □ (Permanent) Pump Installation |

**Instructions:** Please print or type and submit completed report within 30 days after well completion to the Commission on Water Resource Management, P.O. Box 821, 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.

1. **State Well No.** 3010-01  
2. **Location/Address:** Glenwood  
3. **Well Name:** Flagg Well #1  
4. **Island:** Hawaii  
5. **Tax Map Key:** 1-8-11:63

### PART I. WELL CONSTRUCTION REPORT

3. **Drilling Company:** WAT’EL DRILLING & DEVELOPMENT  
4. **Name of driller who performed work:** Jack Lindeberg  
5. **Type of rig/construction:** ROTARY  
6. **Date(s) of Construction and pump tests (if any):** July 1, 1997  
7. **GROUND ELEVATION** (referred to mean sea level, msl): 2654 ft.  
   - **Well Bench Mark (description/location):**  
   - **conductor pipe**  
   - **Elevation (msl):** 2654 ft.
8. **DRILLER’S LOG:** Please attach geologic log (if available or if required by permit)  
   - **Depths (ft.):**  
   - **Rock Description, Water Level, Dates, etc.:**  
   - **Desired Other:**
   - **Signatures:**

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9. **Total depth of well below ground:** 1537 ft.  
10. **Hole size:**  
   - 20 inch dia. from 0 ft. to 1537 ft. below ground  
   - inch dia. from ft. to ft. below ground
11. **Casing installed:**  
   - 14 in. I.D. x 375 in. wall solid section to 1377 ft. below ground  
   - 14 in. I.D. x 312 in. wall perforated section to 1537 ft. below ground
12. **Annulus:**  
   - Grouted from 0 ft. below ground to 1300 ft. below ground  
   - Gravel packed from 1300 ft. below ground to 1537 ft. below ground
13. **Initial water level:** 1163 ft. below ground.  
14. **Initial chloride:** 4 m/l ppm  
15. **Initial temperature:** 63°F  
16. **PUMPING TESTS:** Reference Point (R.P.) used: **conductor pipe** which elevation is 2654 ft.  
   (1) **Step-Drawdown Test Date:** 6/25/97  
   - Start water level 1163 ft. below R.P.  
   - End water level 1162.5 ft. below R.P.  
   (2) **Long-term Aquifer Test Date:** 6/27/97  
   - Start water level 1163 ft. below R.P.  
   - End water level 1162.5 ft. below R.P.
17. **Aquifer Pump Test Procedures data & graphs (1/96 LTAT Form) attached?** Yes / No
18. **As-built drawings attached?** Yes / No
19. **Other remarks/comments:** (On back of this form)

**Well Drilling Contractor (print):** WAT’EL DRILLING  
**Lic. No.:** C-57  
**Date:** 7/10/97

**Lic. No.:** 5075  
**Date:** 7/16/97

**Applicant (print):** Claire E. Flagg  
**Signature:**

**Date:** 7-30-97
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have you seen this?  
I wanted to fire but  
didn't see your initials.
June 28, 1997

Commission on Water
Resource Management
P.O. Box 621
Honolulu, HI 96809

RE: Well Construction Permit Extension
Flagg Well #1, Well No. 3010-01

Enclosed is the executed Well Construction Permit Extension for the above well. I apologize for the delay in returning it to you.

Please contact me if you have any questions or need additional information.

Very truly yours,

James M. Flagg
Project Manager
WELL CONSTRUCTION PERMIT EXTENSION

Flagg Well #1, Well No. 3010-01

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 construction and testing of Flagg Well #1 Well (Well No. 3010-01) at Glenwood, Hawaii, TMK 1-8-11:63, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. 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 by this permit commences.

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 Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure (attached). The permittee shall submit to the Commission 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 Commission.

3. 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.

4. 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 (587-0045) immediately.

5. 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.

6. The following shall be submitted to the Commission within thirty (30) 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 water quality data.

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

8. The well construction permit application and staff submittal approved by the Commission at its August 14, 1996 meeting are incorporated into the permit by reference.

9. 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 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion 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.

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

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

Date of Approval: August 14, 1996
Expiration Date: August 31, 1997

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

Applicant's Signature: CLAIRE E. FLAGG
Date: 8-31-96

Printed Name: CLAIRE E. FLAGG
Firm or Title: OWNER

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

Attachment
c: USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Hawaii Department of Water Supply
Waimea Water Services
Mrs. Claire E. Flagg  
P.O. Box 13359  
San Luis Obispo, Hawaii 93406

Dear Mrs. Flagg:

Well Construction Permit Extension  
Flagg Well #1 (Well No. 3010-01)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s). As part of the Commission’s approval, the following special conditions were added and are part of your permit under Standard Permit Condition 11:

Special Conditions

1. The one-inch monitor tube and Aquifer Pump Testing Procedure under Standard Condition 2 are waived but the applicant shall coordinate with the Commission and conduct a pumping test, or test, adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist, or engineer. A suggested protocol is attached. All other requirements under Standard Condition 2 still apply.

2. The extension shall be to valid until August 31, 1997.

Additionally, the Commission authorized the Chairperson to approve and issue a pump installation permit supported by information provided from aquifer pumping test results, required in Well Construction Standard Condition 6e, subject to the Standard Pump Installation Conditions which will be issued to you when we receive your aquifer pump test results.

Please sign the permit copies and return one for our files. Also, copies of the aquifer pump test procedure and the well completion report form are enclosed for your use.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214 or toll-free at 1-800-468-4644, extension 70214.

Aloha,

Michael D. Wilson

Enclosures

c: Waimea Water Services
WELL CONSTRUCTION PERMIT EXTENSION

Flagg Well #1, Well No. 3010-01

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 construction and testing of Flagg Well #1 Well (Well No. 3010-01) at Glenwood, Hawaii, TMK 1-8-11:63, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. 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 by this permit commences.

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 Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure (attached). The permittee shall submit to the Commission 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 Commission.

3. 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.

4. 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 (587-0045) immediately.

5. 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.

6. The following shall be submitted to the Commission within thirty (30) 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 water quality data.

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

8. The well construction permit application and staff submittal approved by the Commission at its August 14, 1996 meeting are incorporated into the permit by reference.

9. 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 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion 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.

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

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

Date of Approval: August 14, 1996
Expiration Date: August 31, 1997

MICHAEL D. WILSON, 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.

Applicant's Signature: ____________________________ Date: __________
Printed Name: ____________________________ Firm or Title: ____________________________

Please sign both copies of this permit, return one to the Commission, and retain the other for your records.
Dear Mrs. Flagg:

Well Construction Permit Extension
Flagg Well #1 (Well No. 3010-01)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s). As part of the Commission's approval, the following special conditions were added and are part of your permit under Standard Permit Condition 11:

Special Conditions

1. The one-inch monitor tube and Aquifer Pump Testing Procedure under Standard Condition 2 are waived but the applicant shall coordinate with the Commission and conduct a pumping test, or test, adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist, or engineer. A suggested protocol is attached. All other requirements under Standard Condition 2 still apply.

2. The extension shall be to valid until August 31, 1997.

Additionally, the Commission authorized the Chairperson to approve and issue a pump installation permit supported by information provided from aquifer pumping test results, required in Well Construction Standard Condition 6e, subject to the Standard Pump Installation Conditions which will be issued to you when we receive your aquifer pump test results.

Please sign the permit copies and return one for our files. Also, copies of the aquifer pump test procedure and the well completion report form are enclosed for your use.

If you have any questions, please call Rae M. Loui, Deputy Director, at 587-0214 or toll-free at 1-800-468-4644, extension 70214.

Aloha,

MICHAEL D. WILSON
Chairperson

Enclosures

c: Waimea Water Services
WELL CONSTRUCTION PERMIT EXTENSION

Flagg Well #1, Well No. 3010-01

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 construction and testing of Flagg Well #1 Well (Well No. 3010-01) at Glenwood, Hawaii, TMK 1-8-11:83, subject to the following conditions:

STANDARD PERMIT CONDITIONS

1. 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 by this permit commences.

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 Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure (attached). The permittee shall submit to the Commission 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 Commission.

3. 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.

4. 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 (587-0045) immediately.

5. 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.

6. The following shall be submitted to the Commission within thirty (30) 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 water quality data.

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

8. The well construction permit application and staff submittal approved by the Commission at its August 14, 1996 meeting are incorporated into the permit by reference.

9. 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 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion 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.

10. If the well is not to be used it must be properly capped. If the well is to be abandoned then the applicant must apply for a well abandonment permit in accordance with §13-168-12(1) prior to any well sealing or plugging work.

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

Date of Approval: August 14, 1996
Expiration Date: August 31, 1997

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

Applicant's Signature: ___________________________ Date: ______________
Printed Name: ________________________ Firm or Title: ________________________

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

Attachment
C: USGS
Department of Health/ Safe Drinking Water & Wastewater Branches
Hawaii Department of Water Supply
Waimea Water Services

MICHAEL D. WILSON, Chairperson
Commission on Water Resource Management
STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
P. O. BOX 821  
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

for the meeting of the  
COMMISSION ON WATER RESOURCE MANAGEMENT

August 14, 1996  
Honolulu, Oahu

Claire E. Flagg
EXTENSION REQUEST FOR WELL PERMITS  
Flagg Well #1 (Well No. 3010-01)  
Well Construction: 14-inch Casing Diameter, 2900-foot Deep Well  
Pump Installation: 400 GPM for urban use  
TMK 1-8-11:63, Glenwood, Hawaii

APPLICANT:  
Claire E. Flagg  
P.O. Box 13359  
San Luis Obispo, CA  93406

LANDOWNER:  
Same

DESCRIPTION:  
Location: (See Exhibit 1)  
Dimensions: (See Exhibit 2)

BACKGROUND:

June 24, 1994, with the help of its consultant, Waimea Water Services Inc., the applicant submitted a completed application for both well construction and pump installation for the well.  

August 17, 1994, the Commission approved the permit applications and fully executed permits were completed on September 15, 1994. The permits were to expire on August 31, 1996.  

March 1, 1995, the consultant requested that the 6-month start date be extended to the end of March 1995 due to unfinished contact language and bidding procedures. Subsequently, staff administratively extended the start date to May 31, 1995.
May 22, 1995, the consultant requested a second start date extension to August 1, 1995 as the drilling contractor had only recently been selected but had yet to sign the contract. Subsequently, staff again administratively extended the start date to August 31, 1995.

August 25, 1995, the consultant served staff notice that construction activities had commenced.

July 19, 1996, the consultant requested that the completion date be extended since only 70% of the well has been completed, there are disputes concerning payment for work, and that the driller has ceased drilling activities until an extension is granted.

**WATER AVAILABILITY:**

Olaa System of the S.E. Mauna Loa Sector

Estimated Sustainable Yield: 124 mgd

Current Aquifer System Pumpage (12-MAV as of 8/94): 8.09 mgd

Proposed Use: 0.500 mgd, urban use

**ISSUES/ANALYSIS:**

Agency Review: Copies of the original application were sent to the Department of Health’s Safe Drinking Water and Wastewater Branches, as well as County Departments of Water Supply and Public works, the State Historic Preservation Division, Office of Hawaiian Affairs, Division of Aquatic Resources, and the Department of Hawaiian Home Lands. No comments or concerns were raised during the original permit approval.

Staff Review: This well would have been the deepest well in the state. However, fresh high-level ground-water was encountered at approximate elevations of 2114 and 1544 feet above mean sea level (msl). The bottom of the well presently stands at an elevation of 1117 feet above msl and further deepening of the well is deemed unnecessary by the consultant. Further reaming and well development is necessary and the requested extension to August 31, 1997 should be adequate to complete construction activities.

Special conditions were approved by the Commission for the original permits concerning the standard pump testing procedures. These conditions are updated according to present standard well permit language under our special conditions. The consultant understands that the pump installation permit will not be issued until staff is satisfied with pump testing procedures and resulting data.

There are no (0) other wells within a mile of the proposed well. No adverse impacts to water resources are anticipated from the drilling activity. Results of the standard pump test should provide information to help assess future pumpage impacts.
RECOMMENDATION:

A. That the Commission approve the issuance of an extended well construction permit for Flagg Well 1 (Well No. 3010-01), subject to the standard conditions in Exhibit 3, and the following special conditions:

1. The one-inch monitor tube and Aquifer Pump Testing Procedure under Standard Condition 2 are waived but the applicant shall coordinate with the Commission and conduct a pumping test, or test, adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist, or engineer. A suggested protocol is attached (Exhibit 6). All other requirements under Standard Condition 2 still apply.

2. The extension shall be to valid until August 31, 1997.

B. That the Commission authorize the Chairperson to approve and issue a pump installation permit supported by information provided from aquifer pumping test results, required in Well Construction Standard Condition 6e (Exhibit 3), subject to the Standard Pump Installation Conditions in Exhibit 4.

Respectfully submitted,

W. Roy Handsy for RAE M. LOUI
Deputy Director

Exhibit(s): 1 (Location Map) 2 (Proposed Well Section) 3 (Standard Well Construction Permit Conditions) 4 (Standard Pump Installation Permit Conditions) 5 (Well Completion Report Form) 6 (Pump Test Procedures)

APPROVED FOR SUBMITTAL:

MICHAEL D. WILSON, Chairperson
Mr. John Stubbart, President
Waimea Water Services
P.O. Box 326
Kamuela, HI 96743

Dear Mr. Stubbart:

Request for Extension to Well Completion Date, Well No. 3010-01

Thank you for your letter requesting an extension to the subject well. We understand that this deep well is 70% complete and that in anticipation of the expiration of the permit on August 31, 1996, and disputed payments for work to date, the driller has ceased drilling activities until an extension is granted.

We are planning to take this matter to the Commission at its next meeting on Oahu on August 14, 1996 to precede the expiration date of this permit.

If you have any questions, please contact Roy Hardy at 587-0274 or toll-free at 974-4000, extension 70274.

Sincerely,

[Signature]
RAE M. LOUI
Deputy Director

RH:ss
# Long-Term Aquifer Test Data

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<td>Reference pt. for depth to water ft. msl</td>
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<td>Static Water Level @ start of test ft. msl</td>
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Water level measurements by:  
- steel tape  
- pressure transducer  
- airline

### START TEST

- Date: _____  
- Hour of day: _____

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</table>
AQUIFER (PUMP) TEST PROCEDURES

3. Each pumping rate should be continued for one hour, after which the new rate should be instituted as rapidly as possible.

4. Pumping should begin at the lowest rate and conclude with the highest rate.

5. Pumping should be continuous through the entire step-drawdown test.

6. Measurement of chloride concentration and temperature of the discharge water shall be measured at least five times:
   a. at the end of each pumping rate during the step-drawdown test, and
   b. at the very beginning of the test.

7. A sufficient number of water level measurements shall be made in the pumped well following the termination of the step-drawdown test to establish that the water level fully recovers from each test to pretest levels.

Long-Term Continuous Test

The purpose of the long-term continuous test is to determine the hydraulic properties of the aquifer to explore for and identify nearby aquifer boundaries such as streams or dikes, and to observe the trend in chloride concentration of the discharge water.

1. The long-term test should not commence until the water level in the pumped well has fully recovered from the step-drawdown test. Generally, the time required for this recovery will be slightly greater than four hours. The water level in the pumped well should be measured immediately before initiation of the long-term test.

2. The pump rate for the long-term test should be sufficient to create an observable drawdown.

3. The test should be run 24 hours per day for at least seven days. If during the test, the water level remains the same for a period of 24 hours, the test can be terminated.

4. Measurement of chloride concentration and temperature of the discharge water during the long-term test shall be made at the beginning of the test and every six hours thereafter.

5. Depth to water in all wells shall be measured with sufficient frequency that each logarithmic cycle in time on the data plots (Graph 1) contains at least 10 data points spread through the cycle. Thus, depth to water should be made at t=0 (immediately prior to start of the test), and as close as possible at t=1, 1.5, 2, 2.5, 3, 4, 5, 6, 7, and 8 minutes for the first ten minutes and at all succeeding decimal multiples of these numbers to the end of the test (t=10, 15, 20, 25, 30, 40, 50, 60, 70, and 80 minutes for the log cycle 10 to 100 minutes, etc.)

6. A sufficient number of water level measurements shall be made in the pumped well following termination of the long-term continuous test to establish that the water level fully recovers from each test to pretest levels.
WELL CROSS SECTION
FLAGG WELL #1

Top of casing elevation -
Ground elevation - 2680' (approx.)

- Well Bore - 20"
- Grout annulus 500'
- Casing - Solid 14"
- Gravel or BTB Basalt course sand
  Annulus
- Grout - annulus seal - 100'
- Cement basket
- Casing, Louvered Screen
  150' to 200'
- Open annulus
- Bottom of casing
- Bottom of Hole

Notes:
Pump and motor length - approx. 75' [high voltage]
Well pilot hole will be pump tested and well design may change to accommodate findings.
STANDARD WELL CONSTRUCTION PERMIT CONDITIONS

1. 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 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 Commission, to accurately record water levels. The permittee shall coordinate with the Commission and conduct a pumping test in accordance with the attached Aquifer Pump Testing Procedure (attached). The permittee shall submit to the Commission 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 Commission.

3. 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.

4. 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 (587-0045) immediately.

5. 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.

6. The following shall be submitted to the Commission within thirty (30) 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 water quality data.

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

8. The well construction permit application and staff submittal approved by the Commission at its August 14, 1996 meeting are incorporated into the permit by reference.

9. 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 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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion 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.

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

EXHIBIT 3
AQUIFER (PUMP) TEST PROCEDURES

The pump test procedure for new wells shall consist of a step-drawdown test followed by a long-term continuous aquifer test. Testing the well and aquifer in the prescribed manner should result in the hydrologic information needed to determine: 1) the well’s performance with regard to yield and water quality (chloride concentration), and 2) the nearby hydraulic properties of the aquifer.

General Recording Requirements

The records required for analysis and the tolerance in measurement acceptable for the step-drawdown and long-term continuous aquifer test are as follows:

1. Discharge from the well shall not fluctuate beyond ± 10 percent.
2. Depth to water measurements in the pumped well shall be accurate to 0.01 feet.
3. Time shall be accurate within ± 1 percent.
4. Water discharged from the well during the step-drawdown and long-term test shall be carried away from the well to a distance sufficient to preclude circulation of the discharge water downward to the ground-water table.
5. Recording of data should be on a form similar to Table 1. All information shown in Table 1 shall be provided. In addition, data shall be plotted on Graph 1 and provided.

Step-Drawdown Test

The purpose of the step-drawdown test is to establish the efficiency of the well and to provide preliminary information on the yield of the well, both from a quantity and quality standpoint.

1. Measurement of water level in the pumped well shall be made every 12 hours for a period of no less than two days prior to the initiation of the step-drawdown test in order to obtain the pretest trend in water levels.

2. The step-drawdown test will consist of continuously pumping the well for four hours at four different rates.
   a. The change from one pumping rate to the next must be sufficient to induce an observable change in water level in the well from the previous pumpage rate.
   b. If desired, the four different rates should represent the full range of pump capacity (if the yield can sustain this), but this is not necessary.

EXHIBIT 6
PART II.  (PERMANENT) PUMP INSTALLATION REPORT

20. Pump Installation Company: ________________________________

21. Name of person performing work: __________________________

22. Date Pump Installation Completed: __________________________

23. 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 _________

24. As-built drawings attached?  Yes  No

25. Other remarks/comments: (See below)

<table>
<thead>
<tr>
<th>Pump Installation Contractor (print)</th>
<th>C-57 Lic. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signature</td>
<td>Date</td>
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| Applicant (print)                   |              |
| Signature                           | Date         |

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

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<td>Rock Description, Remarks</td>
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19. & 25. Remarks:

___________________________
___________________________
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___________________________
STANDARD PUMP INSTALLATION PERMIT CONDITIONS

1. 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 400 gpm capacity, or less, pump in the well.

3. The permittee 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 a monthly basis, on forms provided by the Commission (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 is notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

5. The applicant shall complete and submit as-built drawings and Part II - (Permanent) Pump Installation Report of the Well Completion Report (attached) to the Commission within thirty (30) days after completion of work.

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

7. The pump installation permit application and staff submittal approved by the Commission at its August 14, 1996 meeting are incorporated into the permit by reference.

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 Commission upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion 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.

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

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

EXHIBIT 4
## WELL COMPLETION REPORT

3/20/96 WCR Form

### Instructions

Please print or type and submit completed report within 30 days after well completion to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809. An as-built drawing of the well and chemical analysis should also be submitted. For assistance call the Commission Regulation Branch at 587-0225, or 1-800-468-4644 Extension 70225.

### PART I - WELL CONSTRUCTION REPORT

1. **State Well No.:**
2. **Location/Address:**

#### 3. Drilling Company:

#### 4. Name of driller who performed work:

#### 5. Type of rig/construction:

#### 6. Date(s) Well Construction and pump tests (if any) completed:

#### 7. GROUND ELEVATION (referenced to mean sea level, msl):
- **Well Bench Mark (description/location):**
- **Elevation (msl):** ft.

#### 8. DRILLER'S LOG: Please attach geologic log (if available or if required by permit)

<table>
<thead>
<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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*(If more space is needed, continue on back.)*

#### 9. Total depth of well below ground: ft.

#### 10. 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

#### 11. 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:**

#### 12. Annulus:
- Grouted from ft. below ground to ft. below ground
- Gravel packed from ft. below ground to ft. below ground

#### 13. Initial water level: ft. below ground.

**Date and time of measurement:**

#### 14. Initial chloride: ppm

**Date and time of sampling:**

#### 15. Initial temperature: °F

**Date and time of measurement:**

#### 16. PUMPING TESTS: Reference Point (R.P.) used:
- which elevation is ft.

- Step-Down Test Date
- Long-term Aquifer Test Date

**Start water level ft. below R.P.**
**End water level ft. below R.P.**
**Start water level ft. below R.P.**
**End water level ft. below R.P.**

#### 17. Aquifer Pump Test Procedures data & graphs (1/9/96 LTAT Form) attached? _Yes _No

#### 18. As-built drawings attached? _Yes _No

#### 19. Other remarks/comments: *(On back of this form)*

### Well Drilling Contractor (print)

**C-57 Lic. No.**

**Signature**

**Date**

### Surveyor (print)

**Lic. No.**

**Signature**

**Date**

### Applicant (print)

**Signature**

**Date**

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**EXHIBIT 5**
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<th>Actual elapsed time $t$ (min)</th>
<th>Depth to water (nearest 0.01 ft)</th>
<th>Recovery $a$ (unadjusted to nearest 0.01 ft)</th>
<th>Pumping rate $Q$ (gpm)</th>
<th>EC (µmhos)</th>
<th>Cl$^-$ (mg/l)</th>
<th>Temp. $^\circ$ F or $^\circ$ C</th>
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END TEST Date: ______________ Hour of day: ______________

ADDITIONAL REMARKS:

Person in charge of pump test (print): ____________________________

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 aquifer test.

CWRM LTAT Form 1/9/96
<table>
<thead>
<tr>
<th>Suggested elapsed time $t$ (min)</th>
<th>Actual elapsed time $t$ (min)</th>
<th>Depth to water (nearest 0.01 ft)</th>
<th>Drawdown $s$ (unadjusted to nearest 0.01 ft)</th>
<th>Pumping rate $Q$ (gpm)</th>
<th>EC (muhos)</th>
<th>$C_l$ (mg/l)</th>
<th>Temp. $^\circ F$ or $^\circ C$</th>
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<td>Flow meter reading at end of pumped period:</td>
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Max possible duration, water level or quality did not stabilize for any 24 period
### COMMISSION ON WATER RESOURCE MANAGEMENT

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<th>DATE:</th>
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**Telecom:** Steve Borders 4:15p 7/24/96

1. Nature of dispute = testing payments & timeline of finishing. Talk about delay in contract. Who is responsible for fines to go over.

2. Well is capped - yes, good pipe. 3 yrs, $13,000
19 July, 1996

Mr. Mike Wilson, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Request for Extension to Well Completion Date
Construction Permit #3010-01
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-11:63

Dear Mr. Wilson,

We are requesting an extension to the Expiration Date for the completion of the Flagg well. The start date was moved back from 31 Aug. 94 to 31 Aug. 95 and approved by the Commission through previous requests (enclosed). The expiration date was not moved back at that time. As of this date, the well is 70% constructed, but the developer is in dispute with the contractor and the well will not be completed by the current expiration date of 31 Aug. 96.

Mr. Flagg desires to obtain an extension to the expiration date to 31 Aug. 97 to allow dispute resolution and time to complete construction of the well.

If there are any questions, please call the undersigned.

Very truly yours,

[Signature]
John Stubbart
President

Enclosures

cc: Mr. James Flagg
19 July, 1996

Mr. Mike Wilson, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Request for Extension to Well Completion Date
Construction Permit #3010-01
FLAGG WELL #1
Glenwood, Hawaii
TMK: 3-1-8-11:63

Dear Mr. Wilson,

We are requesting an extension to the Expiration Date for the completion of the Flagg well. The start date was moved back from 31 Aug. 94 to 31 Aug. 95 and approved by the Commission through previous requests (enclosed). The expiration date was not moved back at that time. As of this date, the well is 70% constructed, but the developer is in dispute with the contractor and the well will not be completed by the current expiration date of 31 Aug. 96.

Mr. Flagg desires to obtain an extension to the expiration date to 31 Aug. 97 to allow dispute resolution and time to complete construction of the well.

If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

Enclosures

cc: Mr. James Flagg
James and Claire E. Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

Dear Mr. and Mrs. Flagg:

Extension of Start Date
Flagg Well #1 (Well No. 3010-01)

We received a letter in your behalf from John Stubbart of Waimea Water Services, requesting an additional extension to the start date for constructing your well (Well No. 3010-01) under the permit issued August 31, 1994.

With this letter, the start date is extended for three months, to August 31, 1995. The expiration date for completing the well remains August 31, 1996.

Sincerely,

[Signature]
RAE M. LOUI
Deputy Director

cc: John Stubbart, Waimea Water Services
Mr. and Mrs. James Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

Dear Mr. and Mrs. Flagg:

Extension of Start Date
Flagg Well #1 (Well No. 3010-01)

We received a letter in your behalf from John Stubbart of Waimea Water Services, requesting an extension to the start date for constructing your well under the permit issued August 31, 1994.

We can do this administratively, and do hereby extend the start date three months, to May 31, 1995. The expiration date for completing the well remains August 31, 1996.

Sincerely,

[Signature]

RAE M. LOUI
Deputy Director

Cl: ss

c: John Stubbart
WELL CONSTRUCTION AND PUMP INSTALLATION PERMIT

for

Flagg Well No. 1
Well No. 3010-01
Glenwood, Hawaii

TO: Clair E. Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct, test, and install a pump in Flagg Well No. 1 (Well No. 3010-01), is approved subject to the following conditions:

STANDARD WELL CONSTRUCTION/PUMP INSTALLATION PERMIT CONDITIONS

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

2. The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test or tests adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist or engineer. A suggested protocol is attached. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

3. The proposed use(s) 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 and pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and
WELL CONSTRUCTION AND PUMP INSTALLATION PERMIT

Well No. 3010-01

by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

4. An approved flowmeter(s) must be installed to measure withdrawals and a monthly record of withdrawals, water-levels, salinity, and temperature must be kept and reported to the Commission on a monthly basis in accordance with the Commission’s September 16, 1992 action on reporting requirements.

5. The following shall be submitted to the Commission within thirty (30) days after completion of work:

a. Well completion report.
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 water quality data.

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

7. The well construction/pump installation permit application and staff submittal approved by the Commission at its August 17, 1994 meeting are incorporated into the permit by reference.

8. The well construction/pump installation permit may be revoked if work is not started within six (6) months after the date of issuance or if work is suspended or abandoned for six months. The work proposed in the well construction/pump installation permit application shall be completed within two years from the date of permit approval.

SPECIAL CONDITION

1. The well shall not be used for drinking water unless it is properly tested and treated.

[Signature]

KEITH W. AHUE, Chairperson
Commission on Water Resource Management

AUG 31 1994
Date of Issuance

TOTAL P. 05
The pump test procedure for new wells shall consist of a step-drawdown test followed by a long-term continuous aquifer test. Testing the well and aquifer in the prescribed manner should result in the hydrologic information needed to determine: 1) the well's performance with regard to yield and water quality (chloride concentration), and 2) the nearby hydraulic properties of the aquifer.

**General Recording Requirements**

The records required for analysis and the tolerance in measurement acceptable for the step-drawdown and long-term continuous aquifer test are as follows:

1. Discharge from the well shall not fluctuate beyond ± 10 percent.
2. Depth to water measurements in the pumped well shall be measured and recorded to the nearest 0.01 feet.
3. Time shall be accurate within ± 1 percent.
4. Water discharged from the well during the step-drawdown and long-term test shall be carried away from the well to a distance sufficient to preclude circulation of the discharge water downward to the ground-water table.
5. Recording of data should be on a form similar to Table 1. All information shown in Table 1 shall be provided. In addition, data shall be plotted on Graph 1 and provided.

**Step-Drawdown Test**

The purpose of the step-drawdown test is to establish the efficiency of the well and to provide preliminary information on the yield of the well, both from a quantity and quality standpoint.

1. Measurement of water level in the pumped well shall be made every 12 hours for a period of no less than two days prior to the initiation of the step-drawdown test in order to obtain the pretest trend in water levels.
2. The step-drawdown test will consist of continuously pumping the well for four hours at four different rates.
   a. The change from one pumping rate to the next must be sufficient to induce an observable change in water level in the well from the previous pumpage rate.
   b. If desired, the four different rates should represent the full range of pump capacity (if the yield can sustain this), but this is not necessary.
3. Each pumping rate should be continued for one hour, after which the new rate should be instituted as rapidly as possible.
AQUIFER (PUMP) TEST PROCEDURES

4. Pumping should begin at the lowest rate and conclude with the highest rate.
5. Pumping should be continuous through the entire step-drawdown test.
6. Measurement of chloride concentration and temperature of the discharge water shall be measured at least five times:
   a. at the end of each pumping rate during the step-drawdown test, and
   b. at the very beginning of the test.
7. A sufficient number of water level measurements shall be made in the pumped well following the termination of the step-drawdown test to establish that the water level fully recovers from each test to pretest levels.

**Long-Term Continuous Test**

The purpose of the long-term continuous test is to determine the hydraulic properties of the aquifer to explore for and identify nearby aquifer boundaries such as streams or dikes, and to observe the trend in chloride concentration of the discharge water.

1. The long-term test should not commence until the water level in the pumped well has fully recovered from the step-drawdown test. Generally, the time required for this recovery will be slightly greater than four hours. The water level in the pumped well should be measured immediately before initiation of the long-term test.
2. The pump rate for the long-term test should be sufficient to create an observable drawdown.
3. The test should be run 24 hours per day for at least seven days. If during the test, the water level remains the same for a period of 24 hours, the test can be terminated.
4. Measurement of chloride concentration and temperature of the discharge water during the long-term test shall be made at the beginning of the test and every six hours thereafter.
5. Depth to water in all wells shall be measured with sufficient frequency that each logarithmic cycle in time on the data plots (Graph 1) contains at least 10 data points spread through the cycle. Thus, depth to water should be made at $t=0$ (immediately prior to start of the test), and as close as possible at $t=1, 1.5, 2, 2.5, 3, 4, 5, 6, 7$, and 8 minutes for the first ten minutes and at all succeeding decimal multiples of these numbers to the end of the test ($t=10, 15, 20, 25, 30, 40, 50, 60, 70, 80$ minutes for the log cycle $10$ to $100$ minutes, etc.)
6. A sufficient number of water level measurements shall be made in the pumped well following termination of the long-term continuous test to establish that the water level fully recovers from each test to pretest levels.
### AQUIFER TEST DATA

<table>
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<tr>
<th>Date</th>
<th>Hour</th>
<th>t (min)</th>
<th>Depth to water (ft)</th>
<th>s (unadjusted) (ft)</th>
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25 August, 1995

Mr. Mike Wilson, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Start of Well Construction Permit #3010-01
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-11:63

Dear Mr. Wilson,

The start of the well construction has commenced. The owner has selected Wai'eli Drilling and Development to perform the work. Wai'eli has started mobilizing and site work has begun.

The well construction permit was approved on 31 August 94. There were two requests for extensions to 31 August 95. We will notify you of the progress of the construction and file the appropriate documents.

If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

cc: Mr. James Flagg
25 August, 1995

Mr. Mike Wilson, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 821
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
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If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

cc: Mr. James Flagg
James and Claire E. Flagg  
P.O. Box 13359  
San Luis Obispo, CA  93406

Dear Mr. and Mrs. Flagg:

Extension of Start Date  
Flagg Well #1 (Well No. 3010-01)

We received a letter in your behalf from John Stubbart of Waimea Water Services, requesting an additional extension to the start date for constructing your well (Well No. 3010-01) under the permit issued August 31, 1994.

With this letter, the start date is extended for three months, to August 31, 1995. The expiration date for completing the well remains August 31, 1996.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

Cl: ss

c: John Stubbart, Waimea Water Services
James and Claire E. Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

Dear Mr. and Mrs. Flagg:

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Flagg Well #1 (Well No. 3010-01)

We received a letter in your behalf from John Stubbart of Waimea Water Services, requesting an additional extension to the start date for constructing your well (Well No. 3010-01) under the permit issued August 31, 1994.

With this letter, the start date is extended for three months, to August 31, 1995. The expiration date for completing the well remains August 31, 1996.

Sincerely,

[Signature]
RAE M. LOUI
Deputy Director

cc: John Stubbart, Waimea Water Services
May 18, 1995

Mr. Mike Wilson, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Request for Extension to Well Construction Permit #3010-01
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-11:63

Dear Mr. Wilson,

We are requesting an extension to the start of well construction (section 8 of the permit) as the developer has had to procure a special use permit for a portion of the project and Mr. Flagg desires to obtain this before the contractor is awarded the contract. This is expected by mid July, 1995.

The contractor has been selected, Wai'eli Drilling and Development, and the contract is ready to sign. The well construction permit was approved on 31 August 94. This is the second request for an extension and we ask for an extension until 1 August 95. We will notify you of the notice to proceed and the construction start date. If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

cc: Mr. James Flagg
Mr. and Mrs. James Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

Dear Mr. and Mrs. Flagg:

Extension of Start Date
Flagg Well #1 (Well No. 3010-01)

We received a letter in your behalf from John Stubbart of Waimea Water Services, requesting an extension to the start date for constructing your well under the permit issued August 31, 1994.

We can do this administratively, and do hereby extend the start date three months, to May 31, 1995. The expiration date for completing the well remains August 31, 1996.

Sincerely,

RAE M. LOUI
Deputy Director

C: John Stubbart
Mr. and Mrs. James Flagg  
P.O. Box 13359  
San Luis Obispo, CA  93406

Dear Mr. and Mrs. Flagg:

Extension of Start Date  
Flagg Well #1 (Well No. 3010-01)

We received a letter in your behalf from John Stubbart of Waimea Water Services, requesting an extension to the start date for constructing your well under the permit issued August 31, 1994.

We can do this administratively, and do hereby extend the start date three months, to May 31, 1995. The expiration date for completing the well remains August 31, 1996.

Sincerely,

RAE M. LOUI  
Deputy Director

Cl:ss

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

WELL CONSTRUCTION AND PUMP INSTALLATION PERMIT

for

Flagg Well No. 1
Well No. 3010-01
Glenwood, Hawaii

TO: Clair E. Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct, test, and install a pump in Flagg Well No. 1 (Well No. 3010-01), is approved subject to the following conditions:

STANDARD WELL CONSTRUCTION/PUMP INSTALLATION PERMIT CONDITIONS

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

2. The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test or tests adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist or engineer. A suggested protocol is attached. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

3. The proposed use(s) 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 and pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and
by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

4. An approved flowmeter(s) must be installed to measure withdrawals and a monthly record of withdrawals, water-levels, salinity, and temperature must be kept and reported to the Commission on a monthly basis in accordance with the Commission's September 16, 1992 action on reporting requirements.

5. The following shall be submitted to the Commission within thirty (30) days after completion of work:
   a. Well completion report.
   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 water quality data.

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

7. The well construction/pump installation permit application and staff submittal approved by the Commission at its August 17, 1994 meeting are incorporated into the permit by reference.

8. The well construction/pump installation permit may be revoked if work is not started within six (6) months after the date of issuance or if work is suspended or abandoned for six months. The work proposed in the well construction/pump installation permit application shall be completed within two years from the date of permit approval.

SPECIAL CONDITION

1. The well shall not be used for drinking water unless it is properly tested and treated.

KEITH W. AHUE, Chairperson
Commission on Water Resource Management
AUG 31 1994
Date of Issuance
I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant's Signature: CLAIRE E. FLAGG Date: 9/15/94

Printed Name: CLAIRE E. FLAGG

Firm or Title: OWNER

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

Attach.
cc: USGS
State Historic Preservation Division
Department of Health
   Safe Drinking Water Branch
   Ground Water Protection Program
   Wastewater Branch
Hawaii Department of Water Supply
February 27, 1995

Mr. Mike Wilson, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION:     Rae M. Loui
                Deputy Director

SUBJECT:    Request for Extension to Well Construction Permit #3010-01
            FLAGG WELL #1
            Glennwood, Hawaii
            TMK: 3-1-8-11:63

Dear Mr. Wilson,

We are requesting an extension to the start of well construction (section 8 of the permit) as the developer has not finalized the contract and bidding. We are just now completing the contract language and should be drilling by the end of March 1995. The permit was approved on 31 August 94. We will notify you of the notice to proceed and the construction start date.

If there are any questions, please call the undersigned.

Very truly yours,

[Signature]

John Stubbart
President

Attachments

cc:  Mr. James Flagg
FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages to:

Name: John Stubbart
Company: WWS
From: Ed Sakoda
Date: 2/22/95
Time: 2:52 pm
Message: Permit as requested

Total number of pages (including Transmittal Page): 4

* * * * * * * *

If you do not receive all of the pages legibly, please call back: (808) 587-0225

Sending Facsimile Number: (808) 587-0219
Receiving Facsimile Number: (808) 885-7851
WELL CONSTRUCTION AND PUMP INSTALLATION PERMIT

for

Flagg Well No. 1
Well No. 3010-01
Glenwood, Hawaii

TO: Clair E. Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

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WELL CONSTRUCTION AND PUMP INSTALLATION PERMIT
Well No. 3010-01

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.

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SPECIAL CONDITION

1. The well shall not be used for drinking water unless it is properly tested and treated.

KEITH W. AHU, Chairperson
Commission on Water Resource Management

AUG 31 1994
Date of Issuance
4 Aug 94

Mr. Keith W. Ahue, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii  96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Application for Well Construction and Pump Permit
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-11:63 ----- CORRECTION

Dear Mr. Ahue,

We submitted an application for construction of the Flagg Well #1, which has been received by your department. A correction to the TMK needs to be made as noted above. The exhibits are still correct and only the cover page and the permit application need to be changed. Enclosed are replacement original and two copies for the above subject permit application for your files.

If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

Attachments
cc: Mr. James Flagg
    Mr. Phil Blackmore
31 May 1994

Mr. Keith W. Ahue, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Application for Well Construction and Pump Permit
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-11:63

Dear Mr. Ahue,

We herewith submit the original and two copies of the above subject permit application for administrative review and approval.

A check for $25.00 is attached for the required filing fee. The application is prepared for Clair Flagg. If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

Attachments
cc: Mr. James Flagg
    Mr. Phil Blackmore
STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management
APPLICATION FOR PERMIT:
[X] WELL CONSTRUCTION PERMIT [X] PUMP INSTALLATION PERMIT

Instructions: Please print or type and send completed application with attachments to the Division of Water and Land Development. P. O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. If necessary, phone 587-0225, Regulation Branch for assistance.

1. A) WELL OWNER:
Firm Name: Clair E. Flagg
Contact Person: James Flagg 805-544-0800
Address: P.O. Box 13359
San Luis Obispo, CA 93406

B) LANDOWNER:
Firm Name: Clair E. Flagg
Contact Person: James Flagg 805-544-0800
Address: P.O.Box 13359
San Luis Obispo, CA 93406

C) CONTRACTOR
Name: To be determined
Address: Contractor's License No.: Clair E. Flagg

2. WELL LOCATION: Flagg Well #1
Island: Hawaii
Address: Glennwood, Hawaii
Tax Map Key: 3-1-8-11:63
(Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

3. A) PROPOSED WORK
[X] Drill New Well
[ ] Alter Location
[ ] Modify existing well
[ ] Redill
[ ] Deepen
[ ] Abandon/Seal
[ ] Install New Pump
[ ] Replace Pump
[ ] Modify Pump

B) WELL TYPE
[ ] Dug
[ ] Bored
[ ] Driven
[ ] Radial
[X] Drilled

Is this well part of a battery of wells? [ ] Yes [X] No
(Briefly describe the proposed work and fill in the diagram on the back of this form).

4. PROPOSED PUMP INFORMATION: Rated Pump Capacity 350 to 400 gallons per minute (gpm)
Pump Type: [X] Submersible
Motor:
[ ] Deep Well Turbine
[ ] Rotary
[ ] Propeller
[X] Diesel
[ ] Rotary-Displacement
[ ] Reciprocating
[ ] Gas
[ ] Centrifugal
[ ] Rotary-Gear
[ ] Impulse
[ ] Electric
rated horsepower - 350 hp

5. PROPOSED USE
[ ] Municipal (including hotels, stores, etc.)
[X] Domestic (individual, noncommercial water systems)
[ ] Industrial systems
[ ] Other (specify):
[ ] Irrigation (specify)
State Land Use District: [ ] Urban
[X] Agriculture
[ ] Rural
[ ] Conservation
County Zoning (describe): Agriculture

6. A) PROPOSED AMOUNT OF WITHDRAWAL: 500,000 gallons per day (350 gpm for 24 hrs)
B) METHOD OF FLOW MEASUREMENT: [X] Flow-meter
[ ] Open pipe
[ ] Orifice Plate
[ ] Weir

7. PENDING ACTIONS: [ ] CDUA
[ ] SMA
[ ] EIS
[ ] EA
[X] NONE
[ ] Other

8. REMARKS: This request is for a combined well and pump installation permits based on the conditions #1 and #2 of the policy bulletin on combined well and pump permits issued 31 Aug 92 (attached).

Well Owner (print) Clair Flagg
Landowner (print) Clair Flagg
Signature __________________ Signature __________________
Date: __________ ______ Date: __________ ______

For Official Use Only:
Field Checked By __________ Latitude ______
Hydrologic Unit ______
Date: __________ Longitude ______
State Well ___

APPLICATION FOR PERMIT:

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   San Luis Obispo, CA 93406

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   Phone: Clair E. Flagg
   Address: James Flagg
   P.O. Box 13359
   San Luis Obispo, CA 93406
   Contractor’s License No.

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   [ ] Rural
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Landowner (print) Clair Flagg

Signature Clair Flagg

Date

For Official Use Only:

Field Checked By
Latitude
Hydrologic Unit

Date
Longitude
State Well
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   San Luis Obispo, CA 93406

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   Firm Name: Clair E. Flagg  
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   Address: P.O. Box 13359  
   San Luis Obispo, CA 93406

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   Phone:  
   Address: Contractor's License No.:  

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   [ ] Impulse  
   [X] Electric rated horsepower - 350 hp

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   [ ] Military  
   [X] Domestic (individual, noncommercial water systems)  
   [ ] Industrial  
   [ ] Other (specify):  
   State Land Use District:  
   [ ] Urban  
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   [ ] EA  
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   [ ] Other

8. REMARKS:  
   This request is for a combined well and pump installation permits based on the conditions #1 and #2 of the policy bulletin on combined well and pump permits issued 31 Aug 92 (attached).

Well Owner (print) Clair Flagg  
Landowner (print) Clair Flagg

Signature Clair Flagg  
Signature Clair Flagg

Date ______________________  
Date ______________________

For Official Use Only:  
Field Checked By ___________  
Latitude ___________  
Hydrologic Unit ___________

Date: ______________________  
Longitude ___________  
State Well ___________
WELL CONSTRUCTION AND PUMP INSTALLATION PERMIT

for

Flagg Well No. 1
Well No. 3010-01
Glenwood, Hawaii

TO: Clair E. Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct, test, and install a pump in Flagg Well No. 1 (Well No. 3010-01), is approved subject to the following conditions:

STANDARD WELL CONSTRUCTION/PUMP INSTALLATION PERMIT CONDITIONS

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

2. The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test or tests adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist or engineer. A suggested protocol is attached. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

3. The proposed use(s) 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 and pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and
by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

4. An approved flowmeter(s) must be installed to measure withdrawals and a monthly record of withdrawals, water-levels, salinity, and temperature must be kept and reported to the Commission on a monthly basis in accordance with the Commission's September 16, 1992 action on reporting requirements.

5. The following shall be submitted to the Commission within thirty (30) days after completion of work:
   a. Well completion report.
   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 water quality data.

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

7. The well construction/pump installation permit application and staff submittal approved by the Commission at its August 17, 1994 meeting are incorporated into the permit by reference.

8. The well construction/pump installation permit may be revoked if work is not started within six (6) months after the date of issuance or if work is suspended or abandoned for six months. The work proposed in the well construction/pump installation permit application shall be completed within two years from the date of permit approval.

SPECIAL CONDITION

1. The well shall not be used for drinking water unless it is properly tested and treated.

KEITH W. AHUE, Chairperson
Commission on Water Resource Management

AUG 31 1994
Date of Issuance
I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant's Signature: __________________________ Date: __________

Printed Name: __________________________________________

Firm or Title: ____________________________________________

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

Attach.

cc: USGS
State Historic Preservation Division
Department of Health
Safe Drinking Water Branch
Ground Water Protection Program
Wastewater Branch
Hawaii Department of Water Supply
AGENDA #1

FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: August 17, 1994
TIME: 9:00 a.m.
PLACE: Kalanimoku Building
        Board Room

1. Minutes of the July 13 and August 3, 1994 meetings

2. Old Business/Announcements

3. County of Maui, Department of Public Works, Amendment to the Interim Instream Flow
   Standard, Honokowai and Mahinahina Streams, Lahaina, Maui

4. County of Maui, Board of Water Supply, Application for a Stream Diversion Works
   Permit; Application for a Stream Channel Alteration Permit, Kanaha Stream, Lahaina,
   Maui

5. Harvey Chong, Application for a Stream Channel Alteration Permit, Channelization of
   Palai Stream, Hilo, Hawaii

6. RESUBMITTAL, EXTENSION - Nansay Hawaii, Inc., Well Construction Permits,
   Puako (Nansay) Wells 1 and 3, Well Nos. 5648-02 & 55-49-01, Puako, South Kohala,
   Hawaii

7. Clair E. Flagg, Application for a Well Construction/Pump Installation Permit, Flagg Well
   No. 1 (Well No. 3010-01), Glenwood, Hawaii

8. Maui Land & Pineapple Company, Inc., Application for a Well Construction Permit,
   Kapalua Well No. 3 (Well No. 5938-04), Kapalua, Maui

   Permit, Maalaea Power Plant Backup Well (Well No. 4829-03), Kahului, Maui
Chairperson and Members
Commission on Water Resource Management
August 17, 1994

ITEM 5

HARVEY CHONG, APPLICATION FOR A STREAM CHANNEL ALTERATION PERMIT, CHANNELIZATION OF PALAI STREAM, HILO, HAWAII

Unanimously approved (Nobriga/Girald).

ITEM 6

RESUBMITTAL: EXTENSION-NANSAY HAWAII, INC., WELL CONSTRUCTION PERMITS, PUAKO (NANSAY) WELLS 1 AND 3, WELL NOS. 5548-02 AND 55-49-01. PUAKO, SOUTH KOHALA, HAWAII

Unanimously approved (Nobriga/Girald).

ITEM 7

CLAIR E. FLAGG, APPLICATION FOR A WELL CONSTRUCTION/PUMP INSTALLATION PERMIT, FLAGG WELL NO. 1 (WELL NO 3010-01), GLENWOOD, HAWAII

The applicant's consultant, Mr. Steve Bowles, presented alternatives to staff Recommendation 2. He explained that they are presenting these alternatives because the wording in this particular circumstance would be very difficult to accomplish on the Big Island due to the depth of this well. The following are the alternatives presented to accomplish the objectives:

"2A) The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test or tests adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist or engineer. A suggested protocol is attached. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

2B) The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson."

Discussion followed on Mr. Bowles presentation. Mr. Sakoda said given the depth and having reviewed the alternatives, staff concurred with alternative 2A. If an understanding could not be reached between the staff and the applicant, it could be brought back to the Commission.

Unanimously approved as amended to accept the applicant's Alternative 2A to staff's recommendation (Nobriga/Sybinsky).

ITEM 8

MAUI LAND & PINEAPPLE COMPANY, INC., APPLICATION FOR A WELL CONSTRUCTION PERMIT, KAPALUA WELL NO. 3 (WELL NO. 5938-04), KAPALUA, MAUI

Mr. Tom Nance, representing Maui Land & Pineapple Company, Inc., commented that they do not have a problem with the size of the pipe but
Chairperson and Members
Commission on Water Resource Management
State of Hawaii
Honolulu, Hawaii

Gentlemen:

Clair E. Flagg
Application for a Well Construction/
Pump Installation Permit
Flagg Well No. 1 (Well No. 3010-01)  
Glenwood, Hawaii

Applicant: Clair E. Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

Landowner: Same

Action Requested: Permission to construct, test, and install a 350 to 400 gallons per minute pump in Flagg Well No. 1 (Well No. 3010-01), for a private, 822 lot zoned subdivision presently served by catchment. Proposed amount of use is 500,000 gallons per day.

Well Location/Tax Map Key: The proposed well will be located near Glenwood, Hawaii at Tax Map Key: 1-8-11: 63 (Attachment 1).

Well Description:

<table>
<thead>
<tr>
<th>Description</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground elevation</td>
<td>2680 ft.</td>
</tr>
<tr>
<td>Casing diameter</td>
<td>14 in.</td>
</tr>
<tr>
<td>Solid casing depth</td>
<td>2700 ft.</td>
</tr>
<tr>
<td>Perforated casing depth</td>
<td>2850 to 2900 ft.</td>
</tr>
<tr>
<td>Open hole</td>
<td>none</td>
</tr>
<tr>
<td>Total depth</td>
<td>2850 to 2900 ft.</td>
</tr>
<tr>
<td>Grouted annulus</td>
<td>0 to 500 ft.</td>
</tr>
<tr>
<td>Pump capacity</td>
<td>350 to 400 gpm</td>
</tr>
</tbody>
</table>

Agency Review: The application has been sent to the Hawaii County Departments of Water Supply and Public Works, the State Historic Preservation Division, Office of Hawaiian Affairs, and Division of Aquatic Resources (DAR), and to the State Departments of Health and Hawaiian Home Lands for review. There have been no objections to the project.

Analysis: The well is expected to develop fresh basal water.

The only wells within about four miles are abandoned test holes. The closest existing well is the Hawaii Department of Water Supply's Olaa Well 3 (Well No. 3603-01) located about 10 miles to the northeast near Kurtistown. No adverse effects are expected.

Water Availability: The well will be located in the Southeast Sector, Olaa Aquifer System of Hawaii. Sustainable yield for the Olaa System is estimated at 124 mgd. The existing and future uses from the aquifer system have not been inventoried.

RECOMMENDATION:

That the Commission approve the issuance of a well construction/pump installation permit for Flagg Well No. 1, subject to the following conditions:

Applicant to present info.
STANDARD WELL CONSTRUCTION/PUMP INSTALLATION PERMIT CONDITIONS

1. The Commission shall be notified before work commences.

2. The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test in accordance with the attached protocol (Attachment 2). A one-inch diameter (minimum) galvanized pipe shall be permanently installed, in a manner acceptable to the Commission, to accurately record water levels. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

3. The proposed use(s) 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 and pump water from a well shall not constitute a determination of correlative water rights. The permittee is notified and by this provision understands that the quantity of water taken from the well could be reduced by the Commission in the future. This permit is not a commitment that the pump capacity permitted here or even some lesser amount is guaranteed in the future.

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SPECIAL CONDITION

1. The well shall not be used for drinking water unless it is properly tested and treated.

Respectfully submitted,

Edwin T. Sakoda

For: RAE M. LOUI
Deputy Director

Attach.

APPROVED FOR SUBMITTAL:

KEITH W. AHUE, Chairperson
DATE: 8/16/94

TO: Ed Saito

FAX #: ____________________________

FROM: Steve Bowles
FAX #: 808-885-7851

TOTAL PAGES INCL. COVER PAGE: 9

CALL 885-5941 SHOULD YOU HAVE PROBLEMS WITH THIS TRANSMISSION. MAHALO.

Please review it - see you tomorrow.
C.W.R.M. WELL CONSTRUCTION CONDITIONS
ALTERNATIVES TO CONDITION #2.

AS WRITTEN

2) The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test in accordance with the attached protocol (attachment 2). A one inch diameter (minimum) galvanized pipe shall be permanently installed, in a manner acceptable to the Commission, to accurately record water levels. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

PREFERRED ALTERNATIVE WORDING

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OR

2B) The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.
TYPICAL WATER LEVEL MEASURING TECHNIQUES IN DEEP HAWAIIAN WELLS

We consider a deep well as one which exceeds 1200 feet to water. Most, if not all, such wells in Hawaii are located on the Island of Hawaii. We have been directly responsible for the design and construction of 8 wells exceeding 1500 feet to water. Seven of these wells have well casing diameters of 14 inches. Four of the wells are constructed in high level dike or fault confined compartments, and 4 are constructed in a basal fresh water lens. Seven of these wells have pumps installed and are operational wells.

About 48 production wells have been constructed where the depth to water exceeds 1200 feet. The various government agencies have built 18 and the private sector has constructed 30. The government (state and county) has constructed 6 wells exceeding 1500 feet to water and the private sector has constructed 18 of which Waimea Water Services has been responsible for eight.

It is in this framework which we are expressing our concern over condition #2. We believe that the increase in potential risk of problems caused during construction by installing a 1 inch pipe is not warranted by the data which might be obtained from a pumping well.

To explain further the basis of concern we have prepared a typical cross section of the various pipes, cable and tubing which must be incorporated in the well casing. Installation of the 1 inch galvanized pipe essentially eliminates the option of an 8 inch casing as shown in Exhibit 1.

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SPB Statement
TYPICAL WATER LEVEL MEASURING TECHNIQUES IN DEEP HAWAIIAN WELLS

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To explain further the basis of concern we have prepared a typical cross section of the various pipes, cable and tubing which must be incorporated in the well casing. Installation of the 1 inch galvanized pipe essentially eliminates the option of an 8 inch casing as shown in Exhibit 1.
Typically water levels are measured by:

1) Steel tape (chalked) - wet line method.
2) Depth calibrated electric sounder.
3) Airline.
4) Float line.

Methods of transmitting and recording data include:

1) Float/wire/drum to inked paper.
2) Air pressure/diaphragm/mechanical pen.
3) Air or water pressure/strain gage/4 to 20 ma, signal to:
   a) Down hole recorder.
   b) Up hole via wire line to recorder.
4) Air pressure/airline/up hole/diaphragm/strain gage/4 to 20 ma.

Water level measurements are used to observe drawdown in a pumping well for purposes of pump design and protection. Aquifer trends and coefficients can be established or observed through the use of water level information.

Exhibit 2 illustrates water levels and temperature data collected via a down hole recorder of the type 3A mentioned above. The depth to water is 1700 feet. An electric sounder was used to measure the actual elevation of the water table and the recorder is attached to the sounder line. A well casing of 4 inches is needed to freely accommodate the 1.5 diameter recorder and sounder line.
Exhibit 3 is a record of airline measurements in a pumping well showing the water level in recovery following a long period of pumping. By photo magnification, the changes in water level can be read quite accurately as illustrated. This data was obtained using 3/8" OD airlines attached to a pump column where the depth to water exceeded 1500 feet.

Based on the accuracy of airline data which can be obtained via 3/8" tubing with no risk and the fact that the requested pump capacity (0.58 MGD) can't possibly exceed nine one hundredth of one per cent as estimated by the USGS in Exhibit 4 (650 MGD/0.58), we request that Condition 2 be revised to incorporate the wording presented in Alternative 2A.
DEEP WELL PUMP/CASING CROSS SECTIONS

5 1/2" COLUMN Pipe w/
6.05' AT COUPLING
1 AWG ELEC. CABLE

1" GALV. Pipe COUPLING
EQUALS 1.70" O.D.

1 1/2" GALV. Pipe
COUPLING EQUALS 2 7/16"

1.70"

6.05"

2 - 3/8" OD AIRLINES

12"
10"
8"
Casing I.D.
GROUND WATER IN KILAUEA VOLCANO AND ADJACENT AREAS OF
MAUNA LOA VOLCANO, ISLAND OF HAWAII

U.S. GEOLOGICAL SURVEY
Open-File Report 93-82

4.0 GROUND WATER

4.1 Recharge

Ground-Water Reservoirs are Recharged by More Than 3,500 Million Gallons of Rainfall Per Day

About 1,250 Mgd/d of rainfall recharges ground-water reservoirs in the lavas of Kilauea; about 2,300 Mgd/d recharges the lavas in the adjacent areas of Mauna Loa.

Annual ground-water recharge was calculated for the study area as the residual of mean annual rainfall after mean annual evapotranspiration and surface-runoff were subtracted. In the calculation, annual surface runoff was set equal to zero because there are no perennial streams on the volcanic slopes, thereby indicating low or nonexistent runoff. Data from Ikenn and Cheng (1983) and Takasaki and others (1985) show that 60 in. of mean annual rainfall approximately coincides with 60 in. of mean annual pan evaporation. Areas with greater than 60 in. of rainfall generally have less than 60 in. of pan evaporation, and areas with less than 60 in. of rainfall have more than 60 in. of pan evaporation.

In areas where mean annual rainfall exceeds about 60 in., mean annual pan evaporation was assumed to be equal to mean annual evapotranspiration because at high rates of rainfall, moisture for evaporation and transpiration is always available within the plants' root zone in the soil. In these areas, therefore, the annual ground-water recharge was set equal to the annual rainfall minus the annual pan evaporation.

In areas where annual rainfall is less than 60 in., the calculation is modified because a negative value for recharge would result from subtracting pan evaporation from rainfall: likewise, to assume that recharge is zero for areas with less than 60 in. of rainfall is not realistic. In areas with less than 60 in. of mean annual rainfall, moisture is not always available for evaporation and transpiration in the root zone. Therefore, pan evaporation overestimates evapotranspiration. To estimate evapotranspiration in the low rainfall areas, a comparison is made with the rainfall-recharge relation of the island of Oahu, Hawaii. In the driest areas on Oahu, where rainfall averages only 20 in., 10 to 20 percent of the rainfall infiltrates into the underlying aquifer (Zym and others, 1986; Giamelluccia, 1986). Assuming similar rates for the Kilauea and Mauna Loa area results in the following estimates of recharge:

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Recharge values thus calculated may be low for two reasons. First, mean annual values were used for both rainfall and pan evaporation; the use of values of shorter duration can result in the calculation of larger recharge values (Giamelluccia and Old, 1987). Second, even in areas of high rainfall, between about 60 and 150 in., rainfall is seasonal and the soil is not saturated throughout the year so that pan evaporation probably overestimates evapotranspiration.

The spatial distribution of annual rainfall, annual pan evaporation, and hydrogeologic boundaries were superimposed using a geographic information system (GIS) to produce maps of ground-water recharge (fig. 4.1). Total recharge in the study area was calculated to be more than 3,500 Mgd/d; about 1,250 Mgd/d in the Kilauea area and about 2,300 Mgd/d in the adjacent areas of Mauna Loa.
C.W.R.M. WELL CONSTRUCTION CONDITIONS

ALTERNATIVES TO CONDITION #2.

AS WRITTEN

2) The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test in accordance with the attached protocol (attachment 2). A one inch diameter (minimum) galvanized pipe shall be permanently installed, in a manner acceptable to the Commission, to accurately record water levels. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

PREFERRED ALTERNATIVE WORDING

2A) The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall coordinate with the Commission and conduct a pumping test or tests adequate in duration to demonstrate a stable and predictable aquifer performance and the specific capacity of the well. The tests shall be conducted under the supervision of a qualified and groundwater experienced geologist, hydrologist or engineer. A suggested protocol is attached. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.

OR

2B) The well construction/pump installation permit shall be for construction, testing, and installation of a 350 to 400 gpm capacity, or less, pump in the well, as determined by the pumping test results. The applicant shall submit to the Commission the test results and proposed permanent pump information, based on the test, for approval by the Chairperson.
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The spatial distribution of annual rainfall, annual pan evaporation, and hydrogeologic boundaries were superimposed using a geographic information system (GIS) to produce maps of ground-water recharge (fig. 4.1). Total recharge in the study area was calculated to be more than 3,550 Mgal/d: about 1,250 Mgal/d in the Kilauea area and about 2,300 Mgal/d in the adjacent areas of Mauna Loa.

Figure 4.1. Ground-water recharge a, in inches per year, and b, in million gallons per day.
DATE: 8/12/94

TO: ED SAKAGUCHI

FROM: JOHN STUBBART

FAX #: 808-885-7851

CALL 885-5941 SHOULD YOU HAVE PROBLEMS WITH THIS TRANSMISSION. MAHALO.

FLAG WELL PERMIT

I NEED TO SPEAK TO YOU ON "CONDITIONS" - I HAVE SOME CONCERNS.

Monday - 8:00 am?!
TO: Honorable Hoaliku L. Drake, Director
Department of Hawaiian Home Lands

Mr. Clayton H.W. Hee, Chairman & Trustee At Large
Office of Hawaiian Affairs

FROM: Keith W. Ahue, Chairperson

SUBJECT: Well Construction & Pump Installation Permit Application

Please review the following permit applications pursuant to your area of concern and submit your comments to us by August 3, 1994.

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Should you have any questions, please contact the Commission on Water Resource Management staff at 587-0225.

JZ:ky
Enc.

Response:
- [X] We have no objections
- ( ) Not subject to our regulatory authority & permit
- ( ) Comments attached
- ( ) Additional information requested
- ( ) Extended review period requested

Contact Person: Luis A. Manrique
Signed: [Signature]
Phone: [Redacted]
Date: [Redacted]
August 4, 1994

Mr. James Flagg
P.O. Box 13359
San Luis Obispo, CA 93406

Dear Jim,

Enclosed are new TMK CORRECTION copies of the Well Construction Permit and cover letters for your review and signature. Please copy the permit for your files and mail the other 3 with the cover letters to the Water Commission.

If you have any questions, please feel free to call me. Thank you.

Sincerely,

John M. Stubbart

Enclosures
4 Aug 94

Mr. Keith W. Ahue, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Application for Well Construction and Pump Permit
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-11:63 — CORRECTION

Dear Mr. Ahue,

We submitted an application for construction of the Flagg Well #1, which has been received by your department. A correction to the TMK needs to be made as noted above. The exhibits are still correct and only the cover page and the permit application need to be changed. Enclosed are replacement original and two copies for the above subject permit application for your files.

If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

Attachments

cc: Mr. James Flagg
    Mr. Phil Blackmore
31 May 1994

Mr. Keith W. Ahue, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Application for Well Construction and Pump Permit
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-11-63

Dear Mr. Ahue,

We herewith submit the original and two copies of the above subject permit application for administrative review and approval.

A check for $25.00 is attached for the required filing fee. The application is prepared for Clair Flagg. If there are any questions, please call the undersigned.

Very truly yours,

[Signature]
John Stubbart
President

Attachments
cc: Mr. James Flagg
    Mr. Phil Blackmore
STATE OF HAWAI'I
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management
APPLICATION FOR PERMIT:
[X] WELL CONSTRUCTION PERMIT [X] PUMP INSTALLATION PERMIT

Instructions: Please print or type and send completed application with attachments to the Division of Water and Land Development. P. O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. If necessary, phone 587-0225, Regulation Branch for assistance.

1. A) WELL OWNER:
   Firm Name: Clair E. Flagg
   Contact Person: James Flagg
   Address: P.O. Box 13359
   San Luis Obispo, CA 93406

   B) LANDOWNER:
   Firm Name: Clair E. Flagg
   Contact Person: James Flagg
   Address: P.O. Box 13359
   San Luis Obispo, CA 93406

   C) CONTRACTOR
   Name: To be determined
   Phone: Contractor's License No.: 
   Address: 

2. WELL LOCATION: Flagg Well #1
   Island: Hawaii
   Address: Glenwood, Hawaii
   Tax Map Key: 3-1-8-11:63

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

3. A) PROPOSED WORK
   [X] Drill New Well
   [] Alter Location
   [] Modify existing well
   [] Redrill
   [] Deepen
   [] Abandon/Seal
   [X] Install New Pump
   [] Replace Pump
   [] Modify Pump

   B) WELL TYPE
   [] Dug
   [] Bored
   [] Driven
   [X] Drilled
   [] Radial
   Is this well part of a battery of wells? [X] Yes [ ] No
   (Briefly describe the proposed work and fill in the diagram on the back of this form).

4. PROPOSED PUMP INFORMATION: Rated Pump Capacity 350 to 400 gallons per minute (gpm)
   Pump Type: Motor:
   [] Deep Well Turbine
   [] Rotary
   [] Propeller
   [] Diesel
   [X] Submersible
   [] Rotary-Displacement
   [] Reciprocating
   [] Gas
   [] Centrifugal
   [] Rotary - Gear
   [] Impulse
   [X] Electric rated horsepower - 350 hp

5. PROPOSED USE
   [] Municipal (including hotels, stores, etc.)
   [] Military
   [X] Domestic (individual, noncommercial water systems)
   [] Industrial
   [] Other (specify):
   [] Irrigation (specify)
   State Land Use District: [ ] Urban
   [X] Agriculture
   [] Rural
   [] Conservation
   County Zoning (describe): Agriculture

6. A) PROPOSED AMOUNT OF WITHDRAWAL: 500,000 gallons per day (350 gpm for 24 hrs)
   B) METHOD OF FLOW MEASUREMENT:
   [X] Flow-meter
   [] Open pipe
   [] Orifice Plate
   [] Weir

7. PENDING ACTIONS: [ ] CDA
   [X] SMA [ ] EIS [ ] EA [ ] NONE
   [ ] Other

8. REMARKS: This request is for a combined well and pump installation permits based on the conditions #1 and #2 of the policy bulletin on combined well and pump permits issued 31 Aug 92 (attached).

Well Owner (print) Clair Flagg
Landowner (print) Clair Flagg
Signature_________________________ Signature_________________________
Date_________________________ Date_________________________

For Official Use Only:

Field Checked By__________________ Latitude________ Hydrologic Unit________
Date:_________________________ Longitude________ State Well________
TO: Dr. Don Hibbard, Director
Historic Preservation Program

Mr. Henry M. Sakuda, Administrator
Division of Aquatic Resources

FROM: Rae M. Loui, Deputy Director
Commission on Water Resource Management

SUBJECT: Well Construction & Pump Installation Permit Application

Please review the following permit applications pursuant to your area of concern and submit your comments to us by August 3, 1994.

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Should you have any questions please contact the Commission on Water Resource Management staff at 587-0225.

JZ:ky
Enc.

Response:
( ) We have no objections
( ) Not subject to our regulatory authority & permit
(✓) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact Person: ___________________________ Phone: ___________________________
Signed: ___________________________ Date: 8/1/94
MEMORANDUM

TO: Rae M. Loui, Deputy Director
Commission on Water Resource Management

FROM: Henry Sakuda, Administrator
Division of Aquatic Resources

SUBJECT: Comments on Well Construction and Pump Installation Permit Applications for Flagg Well 1, Well No. 3010-01, Hawaii (Well and Pump); Maalaea Power Backup Well, Well No. 4829-03 (Well and Pump); Kapalua Well 3, Well No. 5938-04, Maui (Well Construction)

Flagg Well 1

The application by Clair E. Flagg is to drill a new well and install a pump to deliver approximately 500,000 gallons of water to an existing 822 lot zoned subdivision for domestic usage. The well is located at 2,680 feet elevation in the Kilauea region of the Big Island. The area contains no surface water habitats that are likely to be affected by the well.

Maalaea Power Backup Well

The application by Maui Electric Company is drill a new well and install a pump to deliver approximately 260,000 gallons of water per day in the event of maintenance downtime or breakdown of an existing nearby well. The proposed well is located behind the old Maui airport adjacent to Kealia Pond. We would be concerned about the potential for dewatering of the environmentally valuable Kealia Pond area, but the application suggests there would be no actual increase in the amount of water pumped daily. Therefore, we have no objection to the application.

Kapalua Well 3

The application by Maui Land and Pineapple Company is to drill a new well to serve as standby capacity for future domestic use in the Kapalua Water System, East Maui. The well will be located at 790 feet in elevation adjacent to Honokahna Gulch. We do not believe that the well presents and risk to surface water habitats.
TO: Honorable Hoaliku L. Drake, Director  
Department of Hawaiian Home Lands  
Mr. Clayton H.W. Hee, Chairman & Trustee At Large  
Office of Hawaiian Affairs

FROM: Keith W. Ahue, Chairperson

SUBJECT: Well Construction & Pump Installation Permit Application

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Should you have any questions, please contact the Commission on Water Resource Management staff at 587-0225.

Response:
(X) We have no objections  
( ) Not subject to our regulatory authority & permit  
( ) Comments attached  
( ) Additional information requested  
( ) Extended review period requested

Contact Person: Darrell Yagodich, Administrator of Planning Office  
Phone: 586-3857  
Date: 7/29/94

Signed: [Signature]
MEMORANDUM

TO: Rae M. Loui, Deputy Director
Commission on Water Resource Management

FROM: Don Hibbard, Administrator
State Historic Preservation Division

SUBJECT: Flagg Well No. 1 (No. 3010-01)
Glennwood, Puna, Island of Hawaii
TMK: 1-8-07: 279

There are no known historic sites in the area of the proposed well, which is located in
forest at the roughly 2600 foot elevation. The probability of historic sites in this area is
low. We believe that the drilling and installation of the well will have "no effect" on
historic sites.

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

Attn: Mr. William Wong

Dear Mr. Arizumi:

**Well Construction and Pump Installation Permit Application**

Please review the following permit applications pursuant to your area of concern and submit your comments to us by **August 3, 1994**.

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Should you have any questions please contact the Commission on Water Resource Management staff at 587-0225.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

JZ:ky  
Enc.

---

**Response:**

- ☑ We have no objections  
- ( ) Not subject to our regulatory authority & permit  
- ( ) Comments attached  
- ( ) Additional information requested  
- ( ) Extended review period requested

**Contact Person:** Bill Wong  
**Phone:** 587-4258  
**Date:** 7/22/94
Mr. Thomas Arizumi, Chief
Environmental Management Division
State Department of Health
Five Waterfront Plaza
500 Ala Moana Blvd., Suite 250
Honolulu, Hawaii 96813

Attn:  Mr. Dennis Tulang

Dear Mr. Arizumi:

Well Construction and Pump Installation Permit Application

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Sincerely,

RAE M. LOUI
Deputy Director

Response:
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( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact Person: Lori Kajiwara

Signed: Lori Kajiwara

Phone: 586-4290
Date: 7-25-94
Mr. John Stubbart, President
Waimea Water Services Inc.
P.O. Box 326
Kamuela, Hawaii 96743

Dear Mr. Stubbart:

We have received your application and filing fee for a permit to construct and install a pump in Flagg Well #1 (Well No. 3010-01) at Glenwood, Hawaii, (TMK 1-8-7:279). We are reviewing the application for completeness.

Should you have questions please call the Commission on Water Resource Management staff at 587-0225.

Sincerely,

RAE M. LOUI
Deputy Director

JZ:ky

cc: Clair E. Flagg
Mr. William Sewake, Manager  
Department of Water Supply  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720  

Dear Mr. Sewake:

Well Construction and Pump Installation Permit Application

Please review the following permit applications pursuant to your area of concern and submit your comments to us by August 3, 1994.

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Should you have any questions please contact the Commission on Water Resource Management staff at 587-0225.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

JZ:ky
Enc.

Response:
( ) We have no objections  
( ) Not subject to our regulatory authority & permit  
( ) Comments attached  
( ) Additional information requested  
( ) Extended review period requested

Contact Person: __________________________ Phone: ____________
Signed: __________________________ Date: ____________
Ms. Donna Fay K. Kiyosaki  
Chief Engineer  
Department of Public Works  
County of Hawaii  
25 Aupuni Street  
Hilo, Hawaii 96720

Dear Ms. Kiyosaki:

Well Construction and Pump Installation Permit Application

Please review the following permit applications pursuant to your area of concern and submit your comments to us by August 3, 1994.

<table>
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Deputy Director

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( ) Not subject to our regulatory authority & permit  
( ) Comments attached  
( ) Additional information requested  
( ) Extended review period requested

Contact Person: ___________________________  
Phone: ___________________________

Signed: ___________________________  
Date: ___________________________
TO: Honorable Hoaliku L. Drake, Director  
Department of Hawaiian Home Lands

Mr. Clayton H.W. Hee, Chairman & Trustee At Large  
Office of Hawaiian Affairs

FROM: Keith W. Ahue, Chairperson

SUBJECT: Well Construction & Pump Installation Permit Application

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Contact Person: ________________________________  Phone: __________

Signed: ________________________________  Date: __________


TO: Dr. Don Hibbard, Director
Historic Preservation Program

Mr. Henry M. Sakuda, Administrator
Division of Aquatic Resources

FROM: Rae M. Loui, Deputy Director
Commission on Water Resource Management

SUBJECT: Well Construction & Pump Installation Permit Application

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JZ:ky
Enc.

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( ) We have no objections
( ) Not subject to our regulatory authority & permit
( ) Comments attached
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Contact Person: _______________________________  Phone: ______________

Signed: _______________________________  Date: ______________
Mr. Thomas Arizumi, Chief
Environmental Management Division
State Department of Health
Five Waterfront Plaza
500 Ala Moana Blvd., Suite 250
Honolulu, Hawaii 96813

Attn: Mr. William Wong

Dear Mr. Arizumi:

Well Construction and Pump Installation Permit Application

Please review the following permit applications pursuant to your area of concern and submit your comments to us by August 3, 1994.

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RAE M. LOUI
Deputy Director

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Enc.

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Sincerely,

[Signature]

RAE M. LOUI
Deputy Director

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( ) We have no objections
( ) Not subject to our regulatory authority & permit
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact Person: ___________________________ Phone: ____________

Signed: ___________________________ Date: ____________
Ms. Marjorie Ziegler  
Sierra Club Legal Defense Fund, Inc.  
223 South King Street, Suite 400  
Honolulu, Hawaii 96813

Dear Ms. Ziegler:

Well Construction and Pump Installation Permit Application

Please review the following permit applications pursuant to your area of concern and submit your comments to us by August 3, 1994.

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Sincerely,

RAE M. LOUI
Deputy Director

Response:
( ) We have no objections
( ) Not subject to our regulatory authority & permit
( ) Comments attached
( ) Additional information requested
( ) Extended review period requested

Contact Person: ___________________________ Phone: __________
Signed: ___________________________ Date: __________
31 May 1994

Mr. Keith W. Ahue, Chairperson
Commission on Water Resource Management
Dept. of Land and Natural Resources
Division of Water Resources Management
State of Hawaii
P.O.B. 621
Honolulu, Hawaii 96809

ATTENTION: Rae M. Loui
Deputy Director

SUBJECT: Application for Well Construction and Pump Permit
FLAGG WELL #1
Glennwood, Hawaii
TMK: 3-1-8-07:279

Dear Mr. Ahue,

We herewith submit the original and two copies of the above subject permit application for administrative review and approval.

A check for $25.00 is attached for the required filing fee. The application is prepared for Clair Flagg. If there are any questions, please call the undersigned.

Very truly yours,

John Stubbart
President

Attachments
cc: Mr. James Flagg
Mr. Phil Blackmore
APPLICATION FOR PERMIT:

[X] WELL CONSTRUCTION PERMIT  [X] PUMP INSTALLATION PERMIT

Instructions: Please print or type and send completed application with attachments to the Division of Water and Land Development. P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. If necessary, phone 587-0225, Regulation Branch for assistance.

1. A) WELL OWNER:  B) LANDOWNER:
   Firm Name: Clair E. Flagg  Firm Name: Clair E. Flagg
   Contact Person: James Flagg 805-544-0800  Contact Person: James Flagg 805-544-0800
   Address: P.O. Box 13359  Address: P.O. Box 13359
   San Luis Obispo, CA 93406  San Luis Obispo, CA 93406

   C) CONTRACTOR
   Name: To be determined  Phone:
   Address:  Contractor's License No.:

2. WELL LOCATION: Flagg Well #1  Island: Hawaii
   Address: Glennwood, Hawaii  Tax Map Key: 3-1-8-07:279
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

3. A) PROPOSED WORK
   [X] Drill New Well  [ ] Alter Location
   [ ] Modify existing well  [ ] Redrill  [ ] Deepen  [ ] Abandon/Seal
   [X] Install New Pump  [ ] Replace Pump  [ ] Modify Pump
   B) WELL TYPE
   [ ] Dug  [ ] Bored  [ ] Driven  [X] Drilled  [ ] Radial
   Is this well part of a battery of wells?  [ ] Yes  [X] No
   (Briefly describe the proposed work and fill in the diagram on the back of this form).

4. PROPOSED PUMP INFORMATION: Rated Pump Capacity 350 to 400 gallons per minute (gpm)
   Pump Type:
   [ ] Deep Well Turbine  [ ] Rotary  [ ] Propeller  [ ] Diesel
   [X] Submersible  [ ] Rotary-Displacement  [ ] Reciprocating  [ ] Gas
   [ ] Centrifugal  [ ] Rotary - Gear  [ ] Impulse  [X] Electric rated horsepower - 350 hp

5. PROPOSED USE
   [ ] Municipal (including hotels, stores, etc.)  [ ] Military
   [X] Domestic (individual, noncommercial water systems)  [ ] Industrial
   [ ] Other (specify):
   State Land Use District:  [ ] Urban  [X] Agriculture  [ ] Rural  [ ] Conservation
   County Zoning (describe): Agriculture

6. A) PROPOSED AMOUNT OF WITHDRAWAL: 500,000 gallons per day (350 gpm for 24 hrs)
B) METHOD OF FLOW MEASUREMENT:
   [X] Flow-meter  [ ] Open pipe  [ ] Orifice Plate  [ ] Weir

7. PENDING ACTIONS:  [ ] CDUA  [ ] SMA [ ] EIS  [ ] EA  [X] NONE  [ ] Other

8. REMARKS: This request is for a combined well and pump installation permits based on the conditions #1 and #2 of the policy bulletin on combined well and pump permits issued 31 Aug 92 (attached).

For Official Use Only:

Well Owner (print) Clair Flagg  Landowner (print) Clair Flagg
Signature __________________________  Signature __________________________
Date: ______________  Date: ______________

Field Checked By_________ Latitude_________ Hydrologic Unit_________
Date: ___________ Longitude_________ State Well_________
Briefly describe the proposed work:

This well is intended to provide domestic water to an existing 822 lot zoned subdivision located east of the well site. The subdivision is presently served by catchment. The well will become the primary source for the project. A second standby well may be drilled near the same site. A separate permit will be submitted for the second well.

Plan attached
WELL CROSS SECTION
FLAGG WELL #1

Top of casing elevation -
Ground elevation - 2680' (approx.)

- Well Bore - 20"
- Grout annulus 500'
- Casing - Solid 14"
- Gravel or BTB Basalt course sand Annulus
- Grout - annulus seal - 100'
- Cement basket

- Casing, Louvered Screen 150' to 200'
- Open annulus
- Bottom of casing
- Bottom of Hole

Notes:
Pump and motor length - approx. 75' [high voltage]
Well pilot hole will be pump tested and well design may change to accommodate findings.
Combined Well Construction & Pump Installation Permits and Water Use Permits Prior to Well Construction and Pump Installation Permits

The following considerations shall be used by the Commission staff in evaluating and processing well construction and pump installation permit applications for action by the Commission. These are considerations only; each request will be considered on a case-by-case basis.

COMBINED WELL CONSTRUCTION/PUMP INSTALLATION PERMITS MAY BE ALLOWED WHEN:

1. There is no evidence that it will affect other existing and proposed wells.

2. It is in an area where the hydrology and water quality is known or where the sustainable yield is substantially more than existing and proposed withdrawals.

3. The request is for backup wells in areas where the hydrology and water quality is known.

4. The request is for small capacity wells such as wells drilled for domestic/household uses, small irrigation wells, etc.

5. In water management areas, a water use permit has already been obtained and it is evident that the well will not affect other existing and proposed wells.

IN DESIGNATED WATER MANAGEMENT AREAS, UNLESS THE APPLICANT CAN PROVIDE CLEAR AND CONVINCING EVIDENCE TO THE CONTRARY, WATER USE PERMITS SHALL BE OBTAINED PRIOR TO APPROVAL OF WELL CONSTRUCTION APPLICATIONS AND PUMP INSTALLATION APPLICATIONS.

Approved by Commission on Water Resource Management at the meeting held on August 19, 1992

WILLIAM W. PATY
Chairperson

AUG 3 1 1992
DATE
SUSTAINABLE YIELD
EAST VS. WEST

456 MGD
1,831 Sq. Mi.

1,964 MGD
1,937 Sq. Mi.

FLAGG WELL #1 LOCATION

FLAGG WELL #1
AQUIFER LOCATION MAP
Nearest Well
State well #3603-01
Located about 10 miles
North-East near Kurtistown

FLAGG WELL #1 LOCATION
SCALE 1:24000

CONTOUR INTERVAL 20 FEET
DATUM IS MEAN SEA LEVEL

FLAGG WELL #1
PROPOSED LOCATION

FLAGG WELL #1
TOPO LOCATION MAP
STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management
APPLICATION FOR PERMIT:
[X] WELL CONSTRUCTION PERMIT [X] PUMP INSTALLATION PERMIT

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1. A) WELL OWNER:
   Firm Name: Clair E. Flagg  
   Contact Person: James Flagg  
   Address: P.O. Box 13359, San Luis Obispo, CA 93406

B) LANDOWNER:
   Firm Name: Clair E. Flagg  
   Contact Person: James Flagg  
   Address: P.O. Box 13359, San Luis Obispo, CA 93406

C) CONTRACTOR
   Name: To be determined
   Phone: 
   Address: Contractor's License No.: 

2. WELL LOCATION: Flagg Well #1  
   Island: Hawaii  
   Address: Glennwood, Hawaii  
   Tax Map Key: 3-1-8-07:279

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

3. A) PROPOSED WORK
   [X] Drill New Well  
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   [ ] Redrill
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   [ ] Abandon/Seal

B) WELL TYPE
   [ ] Dug  
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   [X] Drilled  
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   Is this well part of a battery of wells?  [ ] Yes  
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   (Briefly describe the proposed work and fill in the diagram on the back of this form).

4. PROPOSED PUMP INFORMATION:
   Rated Pump Capacity 350 to 400 gallons per minute (gpm)
   Pump Type:  
   Motor: 
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   [ ] Other (specify): 
   [ ] Irrigation (specify)  
   State Land Use District: [ ] Urban  
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   [ ] Conservation

   County Zoning (describe): Agriculture

6. A) PROPOSED AMOUNT OF WITHDRAWAL: 500,000 gallons per day (350 gpm for 24 hrs)

7. PENDING ACTIONS:  
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   [ ] SMA  
   [ ] EIS  
   [ ] EA  
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Signature ______________ Date __________

Landowner (print) Clair Flagg  
Signature ______________ Date __________

Field Checked By __________ Latitude __________ Hydrologic Unit __________
Date: __________ Longitude __________ State Well __________

For Official Use Only:

For Official Use Only:

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Briefly describe the proposed work:

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WILLIAM W. PATY
Chairperson

DATE

AUG 31 1992
SUSTAINABLE YIELD
EAST VS. WEST

456 MGD
1,831 Sq. Mi.

1,964 MGD
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FLAGG WELL #1 LOCATION

FLAGG WELL #1
AQUIFER LOCATION MAP
Nearest Well
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Located about 10 miles
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FLAGG WELL #1 LOCATION
STATE OF HAWAII
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
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For Official Use Only:

Well Owner (print) Clair Flagg
Landowner (print) Clair Flagg
Signature Clair Flagg
Date 10/26/94

For Official Use Only:

Field Checked By _______ Latitude _______ Hydrologic Unit _______
Date: _______ Longitude _______ State Well _______
<table>
<thead>
<tr>
<th>DATE</th>
<th>DESCRIPTION</th>
<th>CHECK NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/10/94</td>
<td>Department of Land &amp; Natural Resources: Filing fees for Flagg</td>
<td>3080</td>
</tr>
</tbody>
</table>

Returning Check #3080.

Fee for FLAGG WELL #1 was paid by check No. 2960 dated 5/31/94. Ed Soap.

* Returned check 9/26/94.
Combined Well Construction & Pump Installation Permits and Water Use Permits Prior to Well Construction and Pump Installation Permits

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Approved by Commission on Water Resource Management at the meeting held on August 19, 1992

WILLIAM W. PATY
Chairperson

AUG 31 1992
DATE
Well No. 3010-01

EXHIBIT 1
PAY AMOUNT OF

EXPLANATION AMOUNT

DATE TO THE ORDER OF DESCRIPTION CHECK NUMBER

$29,600

DEPT. OF LAND & NATURAL RESOURCES FILING FEES, FLAG PROP 29G0

AH BANK OF HAWAII

KAMUELA BRANCH

KAMUELA, HAWAII 96743

69-102 1213

DEPT. OF LAND & NATURAL RESOURCES FILING FEES, FLAG PROP 29G0

$29,600
Applicant: Maui Land & Pine
Well Name & No.: Kapalua Well No. 3, (5938-04)
Aquifer Sector: Lahaina = 40 mgd S.Y.
Aquifer System: Honolua = 8 mgd S.Y.
1990 Existing Use (sector) = 15.85 mgd; (system) = 2.78 mgd
2010 Future Need (sector) = 26.16 mgd; (system) = 4.58 mgd
Comments: 1. The WUDP states that:
   a. "The major private systems, Kaanapali and Kapalua, project an increase from an estimated 3.8 mgd to 10 mgd for domestic water."
   b. "Kapalua, Kaanapali, and the HFDC are also proposing to develop new groundwater sources to meet their respective needs for the future."
   c. No specific mention of the well is made.
2. Figures given above are from updated data that has not been incorporated into the WUDP.

Applicant: Clair E. Flagg
Well Name & No.: Flagg Well No. 1, (3010-01)
Aquifer Sector: Southeast Mauna Loa = 291 mgd S.Y.
Aquifer System: Olaa = 124 mgd S.Y.
Existing Use (sector) = 8.09 mgd
Future Need (sector) = 10.47 mgd
Comments: 1. Not listed in WUDP (no inventory in this system).
2. Figures given above are from updated data that has not been incorporated into the WUDP.
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**GOAL (Total MG/D):**

- 5.19
- 6.19
- 7.19
- 7.19
- 7.19

**CRITERIA**

- Threshold Criteria
- Sustainable Yield
- Water quality standards
- Native Hawaiian water rights
- Appurtenant rights
- Correlative rights
- Consistent with land use designations
- Miscellaneous Criteria

**STRATEGIES**

- Recharge Plan
- New ground water source development
- Municipal & Private Domestic
- Agricultural
- Sugar
- Pumice
- Other
- Industrial
- Military
- Other Private
- New surface water source development
- Municipal & Private Domestic
- Agricultural
- Sugar
- Pumice
- Other
- Industrial
- Military
- Other Private
- New meter water source development
- Municipal & Private Domestic
- Agricultural
- Sugar
- Pumice
- Other
- Industrial
- Military
- Other Private
- Transfers of use
- Municipal & Private Domestic
- Agricultural
- Sugar
- Pumice
- Other
- Industrial
- Military
- Other Private
- Net Change
- Municipal & Private Domestic
- Agricultural
- Sugar
- Pumice
- Other
- Industrial
- Military
- Other Private
- Conservation
- Municipal & Private Domestic
- Agricultural
- Sugar
- Pumice
- Other
- Industrial
- Military
- Other Private
- Total Develop Water Supply

- 5.19
- 6.19
- 7.19
- 7.19
- 7.19
Briefly describe the proposed work:

This well is intended to provide domestic water to an existing 822 lot zoned subdivision located east of the well site. The subdivision is presently served by catchment. The well will become the primary source for the project. A second standby well may be drilled near the same site. A separate permit will be submitted for the second well.

Plan attached
WELL CROSS SECTION
FLAGG WELL #1

WWS
5/94

Top of casing elevation -
Ground elevation - 2680' (approx.)

Well Bore - 20"
Grout annulus 500'
Casing - Solid 14"
Gravel or BTB Basalt course sand
Annulus
Grout - annulus seal - 100'
Cement basket
Casing, Louvered Screen
150' to 200'
Open annulus
Bottom of casing
Bottom of Hole

Notes:
Pump and motor length - approx. 75' [high voltage]
Well pilot hole will be pump tested and well design may change to accommodate findings.
SUSTAINABLE YIELD
EAST VS. WEST

FLAGG WELL #1 LOCATION

456 MGD
1,831 Sq. Mi.

1,964 MGD
1,937 Sq. Mi.

FLAGG WELL #1
AQUIFER LOCATION MAP
Nearest Well
State well #3603-01
Located about 10 miles
North-East near Kurtistown

FLAGG WELL #1 LOCATION